

GEOMETRY – MODEL No**1****Q1** Choose the correct answer:

- (1) The length of two sides in an isosceles triangle are 4 cm , 9 cm, then the length of the third side = cm
a) 4 b) 5 c) 9 d) 13
- (2) If the measure of two angles in a triangle are 55° , 70° , then the triangle is triangle
a) Isosceles b) Equilateral c) Scalene d) Obtuse
- (3) The measure of the exterior angle of an equilateral triangle= $^\circ$
a) 60 b) 120 c) 180 d) 360
- (4) In $\triangle ABC$, $AC + BC - AB$ zero
a) \leq b) $>$ c) $=$ d) $<$
- (5) The length of hypotenuse = the length of the median whose drawn from the vertex of right angle
a) Half b) Third c) Quarter d) Twice
- (6) If $X \in$ axis of symmetry of \overline{BC} , then \overline{XB} \overline{XC}
a) $>$ b) $=$ c) $<$ d) \equiv

Q2 Complete each of the following:

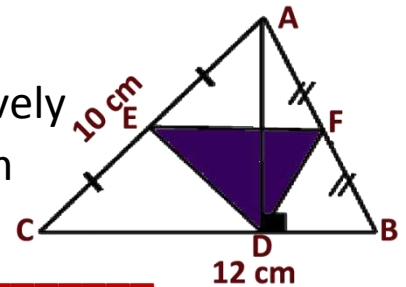
- 1) The intersecting point of the medians of triangle divide each of them with ratio **1** : From the vertex.
- 2) In $\triangle ABC$, $AB = 6$ cm , $BC = 8$ cm, $AC = 4$ cm, then $m(\angle C) > m(\dots)$
- 3) The longest side in the right angled-triangle is
- 4) If ABCD is a parallelogram, $m(\angle A) + m(\angle C) = 110^\circ$, then $m(\angle D) = ..$
- 5) If the length of any side of a triangle = $\frac{1}{3}$ perimeter of triangle, then the triangle has axes of symmetry

Q3 A) In the opposite figure:

$\triangle ABC$, F, E are midpoint of \overline{AB} , \overline{AC} respectively

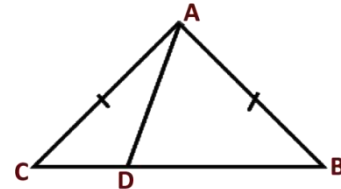
$\overline{AD} \perp \overline{BC}$, $AB = 8$ cm, $AC = 10$ cm, $BC = 12$ cm

Find the perimeter of $\triangle DFE$

**B) In the opposite figure:**

$AB = AC$,

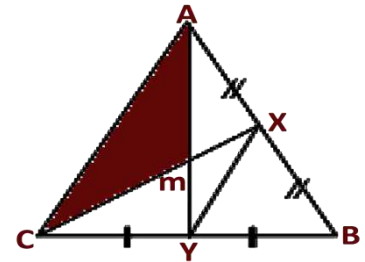
Prove that: $AB > AD$

**Q4 A) In the opposite figure:**

X, Y midpoints of \overline{AB} , \overline{BC} respectively

$\overline{AY} \cap \overline{XC} = \{m\}$, $XY = 6$ cm, $MY = 4$ cm

$XC = 9$ cm. Find the perimeter of $\triangle ABC$

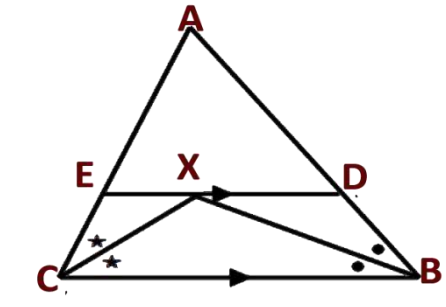
**B) In the opposite figure:**

$AB = 8$ cm, $AC = 6$ cm

$\overline{DE} \parallel \overline{BC}$, \overline{BX} bisects $\angle (DBC)$,

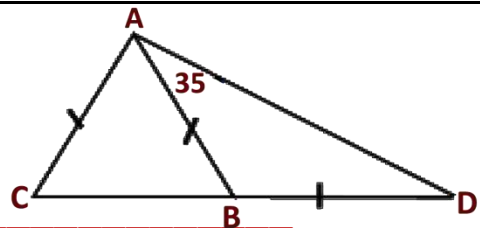
\overline{CX} bisects $\angle (BCE)$

Find the area of $\triangle ADE$

**Q5 A) In the opposite figure:**

$AB = BC = AC$, $m(\angle DAB) = 35^\circ$

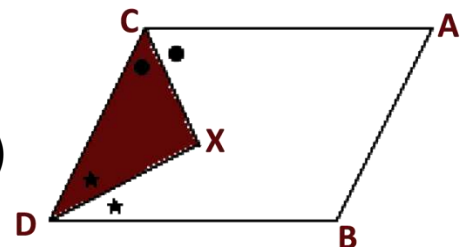
Find by proof $m(\angle BAC)$

**B) In the opposite figure:**

ABCD is a parallelogram,

\overline{XD} Bisects $\angle (BDC)$, \overline{XC} Bisects $\angle (ACD)$

Prove that: $AB > XC$



End of the questions

GEOMETRY – MODEL No**2****Q1** Choose the correct answer:

(1) In $\triangle ABC$, \overline{AD} is median, m is concurrence point, then $AM = \dots AD$

- a) 2 b) $\frac{1}{2}$ c) $\frac{1}{3}$ d) $\frac{2}{3}$

(2) $\triangle XYZ$, $XY = XZ$, then the exterior angle at Vertex **Z** is

- a) Acute b) Right c) Obtuse d) Reflex

(3) A triangle its sides **4** cm, **7** cm, **X** cm, then $X \in \dots$

- a) $[3, 11]$ b) $]3, 11[$ c) $[3, 11[$ d) $]3, 11]$

(4) The triangle has two angles of measure **50°** , **60°** , then the number of axes of symmetry

- a) Zero b) 1 c) 2 d) 3

(5) Length of hypotenuse = the side opposite to **30°**

- a) 2 b) $\frac{1}{2}$ c) $\frac{1}{3}$ d) 3

(6) In $\triangle ABC$, $AB = AC$, $m(\angle A) = 50^\circ$. then $BC \dots AB$

- a) $<$ b) $=$ c) $>$ d) \equiv

Q2 Complete each of the following:

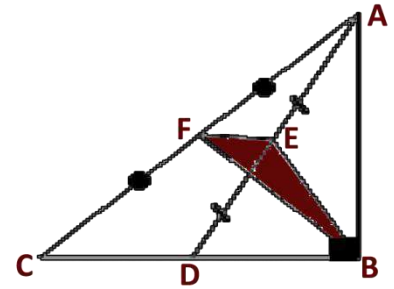
- In $\triangle ABC$, D is midpoint of \overline{BC} , $AD = \frac{1}{2} BC$, then $m(\angle A) = \dots$
- The bisector of vertex of isosceles triangle bisects and perpendicular to it.
- In $\triangle ABC$, $AB + BC > \dots$
- If the vertically opposite angles are complementary, then the measure of each one = $^\circ$
- The axis of symmetry of a line segment is straight line

Q3 A) In the opposite figure:

$M (\angle ABC) = 90^\circ$, E midpoint of \overline{AD}

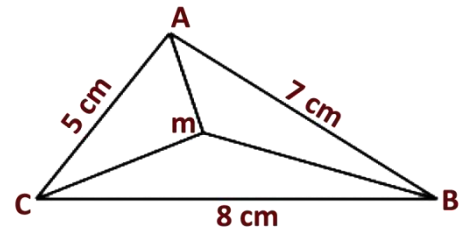
F midpoint of \overline{AC} , $AD = 10$ cm, $DC = 6$ cm

$AC = 12$ cm. **find the perimeter of $\triangle BEF$**

**B) In the opposite figure:**

Prove that:

$$MB + MA + MC > 10 \text{ cm}$$

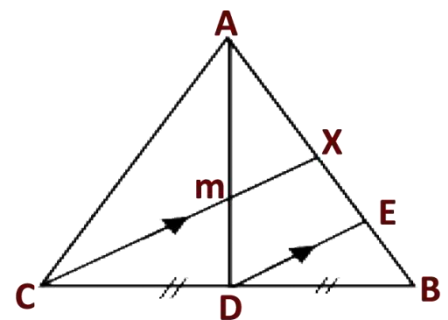
**Q4 A) In the opposite figure:**

D is midpoint of BC, $\overline{AD} \cap \overline{CX} = \{m\}$

$AM : MD = 2 : 1$, $\overline{DE} \parallel \overline{XC}$

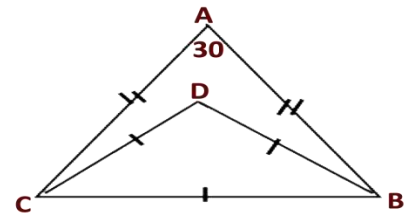
If $XM = 6$ cm

Find the length of \overline{DE}

**B) In the opposite figure:**

$BD = DC = CB$, $AB = AC$

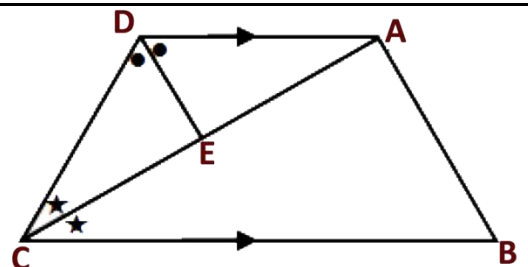
$M (\angle BAC) = 30^\circ$, **Find the $m (\angle ABD)$**

**Q5 A) In the opposite figure:**

$\overline{AD} \parallel \overline{BC}$, \overline{DE} bisects $(\angle ADC)$,

\overline{CA} bisects $(\angle BCD)$, **Prove that:**

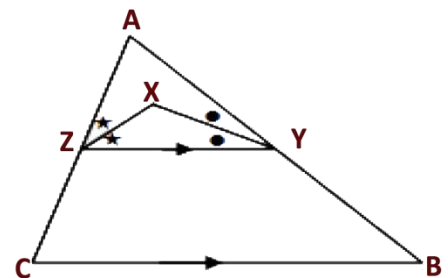
① E midpoint of \overline{AC} ② $\overline{DE} \perp \overline{AC}$

**B) In the opposite figure:**

$AB > AC$, $\overline{YZ} \parallel \overline{BC}$, \overline{XY} bisects $\angle (AYZ)$

\overline{XZ} bisects $(\angle AZY)$.

Prove that: $XY > XZ$



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End of the questions

GEOMETRY – MODEL No**3****Q1** Choose the correct answer:

(1) \overline{AD} is a median in $\triangle ABC$, $AD = \frac{1}{2} BC$, then $\angle A$ is

- a) Acute b) Obtuse c) Right d) Straight

(2) The measure of exterior angle of an equilateral triangle = $^{\circ}$

- a) 60 b) 90 c) 120 d) 180

(3) If the length of any side of triangle = $\frac{1}{3}$ its perimeter, then the number of axes of symmetry of this triangle is

- a) Zero b) 1 c) 2 d) 3

(4) In $\triangle ABC$, $AB + BC - CA > \dots\dots\dots$

- a) Zero b) 1 c) 2 d) 3

(5) ABCD is a rhombus, $AC > BD$, then $m(\angle D) \dots\dots\dots m(\angle C)$

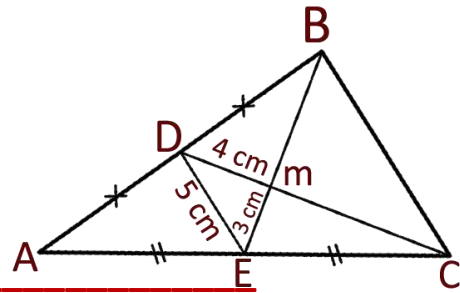
- a) $>$ b) $=$ c) $<$ d) \leq

Q2 Complete each of the following:

- 1) If 5 , 7 , X are lengths of triangle sides, then $X \in] \dots\dots\dots , \dots\dots\dots [$
- 2) Any point lies on axis of symmetry of a line segment is
From its terminals.
- 3) If the measures of two angles are different then the greatest in measure is opposite to a side of
- 4) The bisector of the vertex angle of an isosceles triangle.....
- 5) In $\triangle ABC$, $AB = AC$, $m(\angle A) = 3 m(\angle B)$, then $m(\angle C) = \dots\dots\dots^{\circ}$
- 6) In $\triangle ABC$ if $\overline{AB} \perp \overline{BC}$ and $AB = BC$ then $m(\angle A) = \dots\dots\dots^{\circ}$

Q3 A) In the opposite figure:

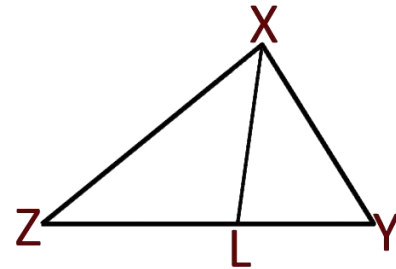
M is intersection point of medians
 $ME = 3 \text{ cm}$, $MD = 4 \text{ cm}$, $DE = 5 \text{ cm}$.
 Find the perimeter of $\triangle MBC$

**B) In the opposite figure:**

In $\triangle XYZ$, $L \in YZ$

Prove that:

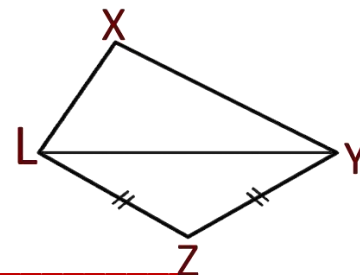
Perimeter of $\triangle XYZ > 2 \times XL$

**Q4 A) In the opposite figure:**

$XY > XL$, $ZY = ZL$

Prove that:

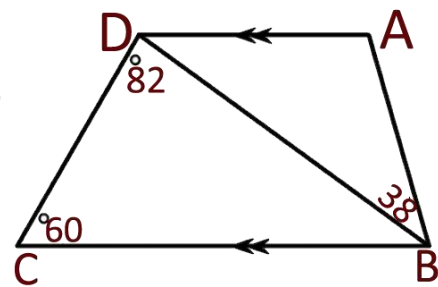
$m(\angle XLZ) > m(\angle XYZ)$

**B) In the opposite figure:**

$AD \parallel BC$, $m(\angle BCD) = 82^\circ$, $m(\angle ABD) = 38^\circ$

$m(\angle BCD) = 60^\circ$. **Prove that:**

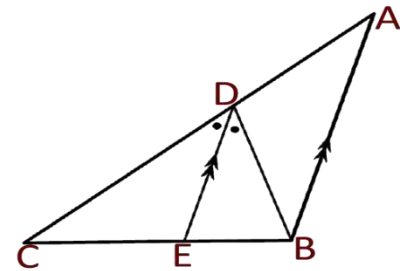
$\triangle ABD$ is an isosceles triangle

**Q5 A) In the opposite figure:**

If $\overline{DE} \parallel \overline{AB}$

\overline{DE} Bisects $\angle BDC$

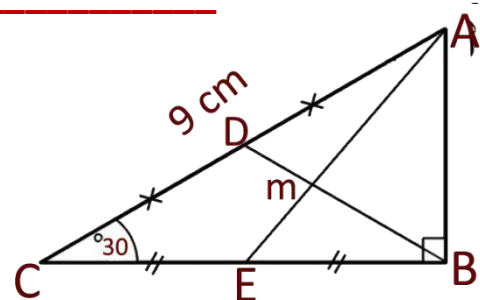
Prove that: $AC > BC$

**B) In the opposite figure:**

$\triangle ABC$ is right at B, $m(\angle C) = 30^\circ$,

D is midpoint of \overline{AC} , E is midpoint of \overline{BC}

$AC = 9 \text{ cm}$. Find length of \overline{BM} , \overline{AB}



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 End of the questions

GEOMETRY – MODEL No**4****Q1** Choose the correct answer:

(1) \overline{AD} is a median in $\triangle ABC$, $AD = \frac{1}{2} BC$, then $(\angle A)$ is

- a) Acute b) Right c) Reflex d) obtuse

(2) If $D \in$ axis of symmetry of \overline{AB} , then AD BD

- a) \perp b) $=$ c) $>$ d) $<$

(3) The triangle with sides 2 cm, $(X+3)$ cm, 5 cm is isosceles triangle when $x =$

- a) -1 b) 2 c) 3 d) 4

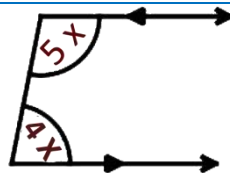
(4) The sum of measures of exterior angles for equilateral triangle =

- a) 60° b) 120° c) 180° d) 360°

(5) The intersecting point of the median of triangle divide it with ratio **2** : from the base .

- a) 1 b) 2 c) 3 d) 4

(6) In the opposite figure:
 $X =$ $^\circ$



- a) 20 b) 40 c) 90 d) 180

Q2 Complete each of the following:

1) If 3, 4, $x + 2$ are sides lengths of a triangle, then $X \in] \dots, \dots [$

2) $\triangle ABC$, $AB = AC$, $m(\angle A) = 60^\circ$ and its perimeter = 12 cm, then $BC =$

3) In $\triangle ABC$, $m(\angle B) = 90^\circ$, $m(\angle A) = 30^\circ$, then $AC =$ BC

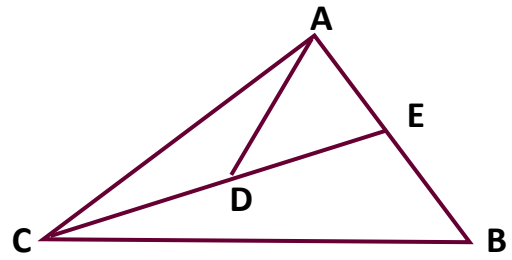
4) The bisector of the vertex angle in isosceles triangle bisect the base and

5) In $\triangle ABC$, $AB = BC$, $m(\angle B) = 50^\circ$, then $m(\angle A) >$

Q3 A) In the opposite figure:

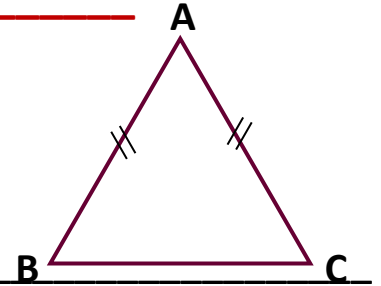
$$AD = CD = ED$$

Prove that : $BC > AC$

**B) In the opposite figure:**

$$AB = AC, m(\angle A) = x, m(\angle B) = 2x$$

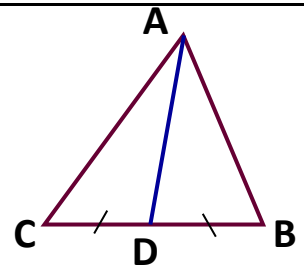
Find $m(\angle C)$ in degree.

**Q4** A) In the opposite figure:

$\triangle ABC$, D is a midpoint of \overline{BC}

Prove that:

Perimeter of $\triangle ADC >$ Perimeter of $\triangle ABD$

**B) $\triangle ABC$, $m(\angle A) = 75^\circ$, $m(\angle B) = 40^\circ$.**

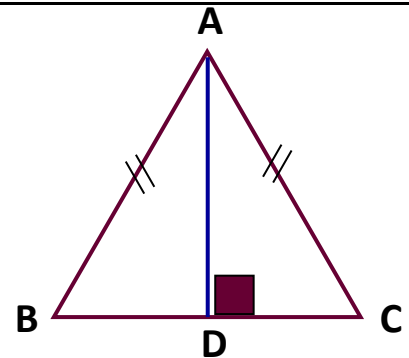
Arrange descending the sides' length of triangle ABC.

Q5 A) In the opposite figure:

$$AB = AC, \overline{AD} \perp \overline{BC}, AB = 13 \text{ cm}$$

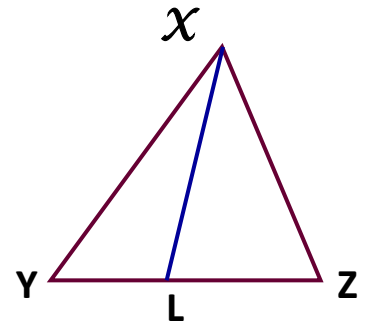
$$BC = 10 \text{ cm},$$

Find: ① Length of \overline{BD}
② Area of $\triangle ABC$

**B) In the opposite figure:**

Prove that:

$$\text{Perimeter of } \triangle XYZ > 2 \text{ XL}$$



End of the questions

GEOMETRY – MODEL No**5****Q1** Choose the correct answer:

- (1) The number of axes of symmetry of isosceles triangle =
a) Zero b) 1 c) 2 d) 3
- (2) $XA = XB$ and $YA = YB$, then \overleftrightarrow{XY} \overline{AB}
a) $//$ b) \perp c) \equiv d) $=$
- (3) In $\triangle ABC$, $m(\angle C) = 65^\circ$, $m(\angle A) = 75^\circ$ then ..
a) $AB > BC$ b) $AB < AC$ c) $BC > AB$ d) $AB = AC$
- (4) If M is the point of intersection of medians of $\triangle ABC$, D is midpoint of \overline{BC} , then $AD =$
a) $2 AM$ b) $4 MD$ c) $\frac{2}{3} MD$ d) $\frac{1}{2} AM$
- (5) The set of numbers can be lengths of sides of triangle are
a) $\{4, 6, 10\}$ b) $\{4, 6, 8\}$ c) $\{2, 6, 3\}$ d) $\{4, 5, 10\}$
- (6) In $\triangle ABC$, $m(\angle A) + m(\angle B) < m(\angle C)$, then AB BC
a) $<$ b) $=$ c) $>$ d) \leq

Q2 Complete each of the following:

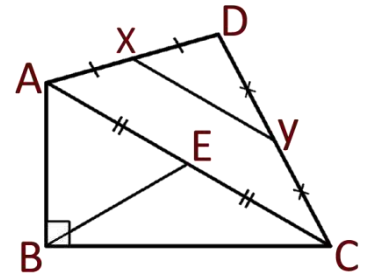
- 1) In the isosceles triangle, if $AB = AC$, $m(\angle A) = 70^\circ$, then $AB < \dots$
- 2) In $\triangle ABC$, if $m(\angle A) = 30^\circ$ and $m(\angle B) = 90^\circ$, then $BC = \dots AC$
- 3) If the measure of two angles in a triangle are different, then the greater in measure of them is opposite to
- 4) If the measure of the vertex angle of an isosceles triangle is 80° , then the measure of each of two base angle equal
- 5) The measure of the exterior angle of the equilateral $\triangle = \dots$

Q3 A) In the opposite figure:

X is midpoint of \overline{AD} , Y is midpoint of \overline{CD}

E is midpoint of \overline{AC} , $m(\angle ABC) = 90^\circ$

$XY = 6$ cm. Find length of \overline{BE}



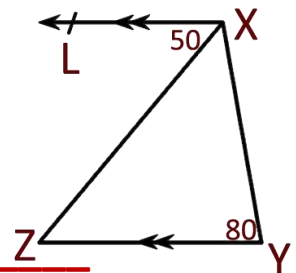
B) $\triangle ABC$, $D \in \overline{BC}$, $AD = AC$
Prove that: $AB > AD$

Q4 A) In the opposite figure:

$XL \parallel YZ$, $m(\angle Y) = 80^\circ$

$m(\angle LXZ) = 50^\circ$.

Prove that: $XY = YZ$



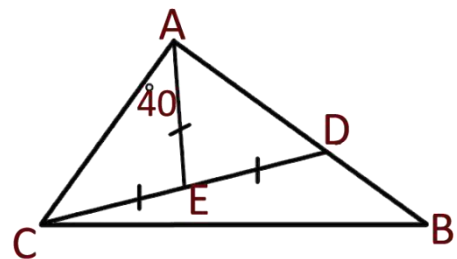
B) In the opposite figure:

$DE = EC = AE$

$m(\angle EAC) = 40^\circ$

Prove that:

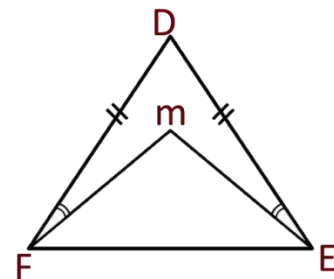
① $AC > AE$ ② $AC < BC$

**Q5 A) In the opposite figure:**

If $DE = DF$, $m(\angle DEM) = m(\angle DFM)$

Prove that:

\overrightarrow{DM} is axis of symmetry of \overline{EF}



B) ABCD is a parallelogram, its diagonal intersect at M, draw \overrightarrow{BX} median in $\triangle ABD$ cut \overline{AD} in X, \overline{AC} in N

Prove that: $AN = \frac{1}{3} AC$

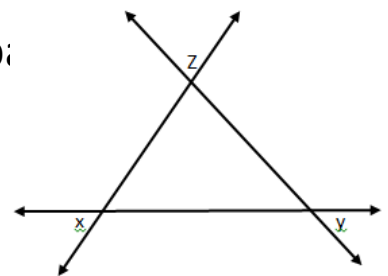
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 End of the questions

GEOMETRY – MODEL No**6****Q1** Choose the correct answer:

- (1) The number of axes of symmetry of equilateral triangle =
 a) 3 b) 2 c) 1 d) Zero
- (2) The set of numbers which can be lengths of sides of triangle are
 a) {5, 3, 8} b) {4, 6, 12} c) {2, 6, 3} d) {3, 5, 5}
- (3) In $\triangle ABC$, $m(\angle C) = 65^\circ$, $m(\angle A) = 75^\circ$ then
 a) $AB > BC$ b) $AB < AC$ c) $BC > AB$ d) $AB = AC$
- (4) If $XA = XB$ and $YA = YB$, then $\overleftrightarrow{XY} \dots\dots\dots \overline{AB}$
 a) $//$ b) \perp c) \equiv d) $=$
- (5) In $\triangle ABC$, if $m(\angle B) = 90^\circ$, D is midpoint of \overline{AC} , then $AC = \dots\dots\dots$
 a) 2 BD b) 4 BD c) $\frac{1}{2}$ BD d) $\frac{1}{3}$ AD
- (6) The measures of exterior angle of equilateral triangle =^o
 a) 60 b) 120 c) 180 d) 360

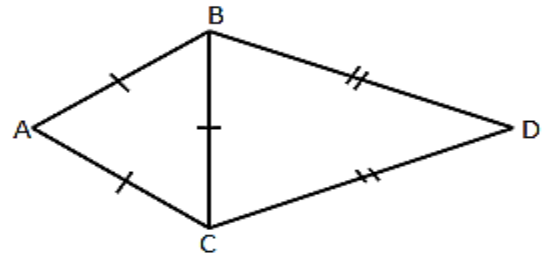
Q2 Complete each of the following:

- 1) The longest side in the right angled triangle is
- 2) The point of intersection of the medians of the triangle divides each median in the ratio 4 : from the b;
- 3) In opposite figure $X+Y+Z = \dots\dots\dots^\circ$
- 4) $\triangle ABC$ is an isosceles triangle, $m(\angle B) = 100^\circ$ then $m(\angle B) = \dots\dots^\circ$
- 5) In $\triangle ABC$ if $AB = 3$ cm, $BC = 4$ cm, $AC = X$ cm then $X \in] \dots\dots, \dots\dots [$



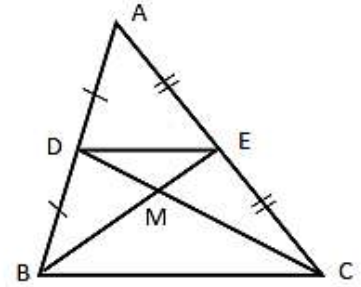
Q3 [A] In the opposite figure

$AB = AC = BC$, $BD = DC$
 $m(\angle ABD) = 130^\circ$,
Find $m(\angle D)$

**[B] In the opposite figure**

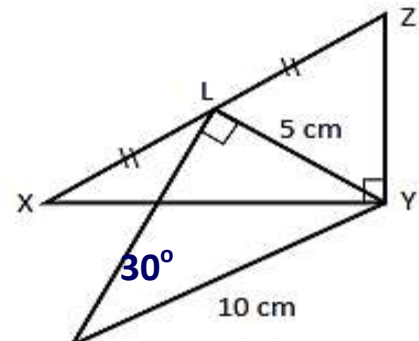
D is midpoint of \overline{AB} , E is midpoint of \overline{AC}
 $BM = 4$ cm , $MC = 6$ cm , $BC = 8$ cm

Find the perimeter of $\triangle DME$

**Q4 [A] In the opposite figure**

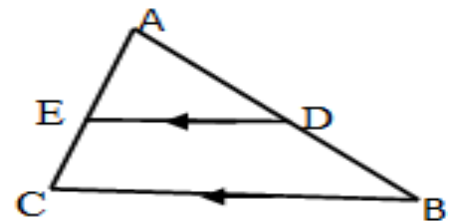
$m(\angle XYZ) = m(\angle HLY) = 90^\circ$
 $m(\angle H) = 30^\circ$, $LY = 5$ cm , $HY = 10$ cm
 L is midpoint of \overline{XZ}

Find the length of \overline{XZ}

**[B] In the opposite figure**

$AB > AC$, $\overline{ED} \parallel \overline{BC}$

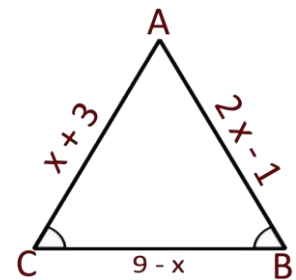
Prove that: $AD > AE$

**Q5 [A] In the opposite figure**

In $\triangle ABC$, $m(\angle B) = m(\angle C)$

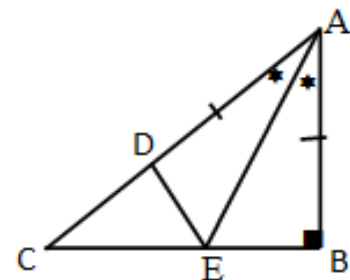
$AB = 2X - 1$, $AC = X + 3$, $BC = 9 - X$

Find the numerical value of perimeter of $\triangle ABC$

**[B] In the opposite figure**

$AB = AD$, \overline{AE} bisects $\angle BAC$

$m(\angle ABC) = 90^\circ$, **Prove that** $CE > EB$



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 End of the questions

GEOMETRY – MODEL No**7****Q1** Choose the correct answer:

- (1) If $\triangle ABC$ is right angled triangle at B, $AC = 10$ cm, $BC = 8$ cm, then the length of the median drawn from B = cm
 a) 5 b) 6 c) 8 d) 10
- (2) The point of intersection of the medians of triangle divides each of them with the ratio offrom the base
 a) 1 : 2 b) 2 : 1 c) 1 : 3 d) 3 : 1
- (3) ABCD is a rhombus in which $AC > BD$, then $m(\angle D) \dots m(\angle C)$
 a) $>$ b) $<$ c) $=$ d) \leq
- (4) If the length of two sides of an isosceles triangle are 3 , 7 cm. then the length of the third side = cm
 a) 3 b) 4 c) 7 d) 10
- (5) In $\triangle ABC$, $m(\angle B) = 70^\circ$, $m(\angle C) = 50^\circ$, then $BC \dots AC$
 a) $>$ b) $=$ c) $<$ d) \leq
- (6) \overline{AD} is median in $\triangle ABC$, m is intersection point of its medians, $AD = 6$ cm, then $AM = \dots$ cm
 a) 1 b) 2 c) 3 d) 4

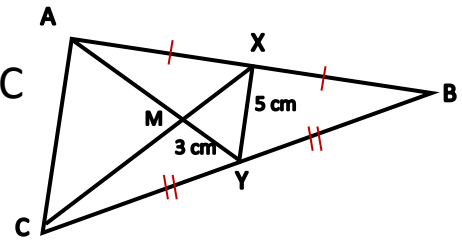
Q2 Complete each of the following:

- 1) ABC, $BC = AC$, $m(\angle A) = 2 m(\angle C)$, then $m(\angle B) = \dots$
- 2) An isosceles triangle with vertex angle = 60° , its perimeter $3\sqrt{5}$ cm, then its side length
- 3) The vertex angel bisector in the isosceles triangle bisect the base and.....
- 4) In a triangle, If its side lengths is 2 , 4, $X + 1$ then $X \in] \dots, \dots[$
- 5) The length of two sides in the triangle are not equal, then the greater side in length is opposite to

Q3 A) In the opposite figure:

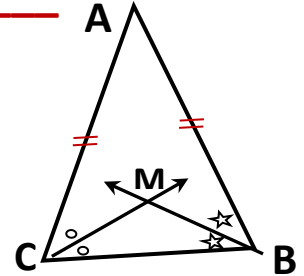
M is the intersection of the medians of $\triangle ABC$
 $XY = 5$ cm, $CX = 12$ cm, $MY = 3$ cm.

Find with prove the perimeter of $\triangle MAC$

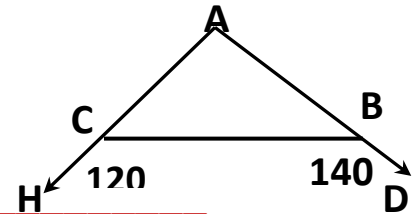
**B) In the opposite figure:**

$\triangle ABC$, $AB = AC$, \overrightarrow{BM} bisect $(\angle B)$,
 \overrightarrow{CM} bisect $(\angle C)$, without using the congruency

Prove that: \overrightarrow{AM} is the axis of symmetry of \overline{BC}

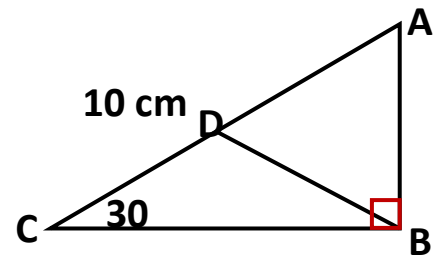
**Q4 A) In the opposite figure:**

$\triangle ABC$, $D \in \overline{AB}$, $H \in \overline{AC}$, $m(\angle CBD) = 140^\circ$
 $m(\angle BCH) = 120^\circ$. **Prove that $BC > AB$**

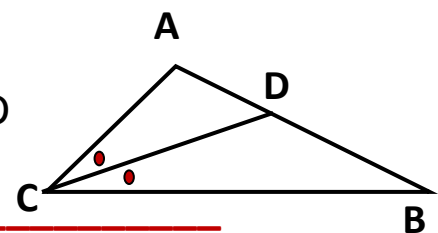
**B) In the opposite figure:**

$\triangle ABC$ right angled triangle at B
D is midpoint of \overline{AC} , $AC = 10$ cm,
 $m(\angle C) = 30^\circ$.

Calculate the perimeter of $\triangle ADB$

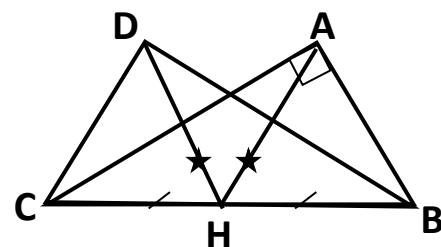
**Q5 A) In the opposite figure:**

$\triangle ABC$, \overrightarrow{CD} bisect $(\angle C)$ and intersect \overline{AB} in D
Prove that: $BC > BD$

**B) In the opposite figure:**

$\triangle ABC$ right angled triangle at A
H is midpoint of \overline{BC} , $AH = DH$

Prove that: $m(\angle BDC) = 90^\circ$



◆ ◆ ◆
 End of the questions

GEOMETRY – MODEL No**8****Q1** Choose the correct answer:

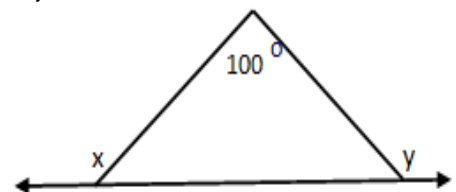
- (1) The triangle which has three axes of symmetry is
 a) scalene b) isosceles c) Right angled d) equilateral
- (2) If the lengths of two sides in an isosceles triangle are 8 cm and 4 cm then the length of the third side is cm
 a) 4 b) 8 c) 3 d) 12
- (3) In $\triangle XYZ$, $m(\angle Z) = 70^\circ$, $m(\angle Y) = 60^\circ$ then YZ XY
 a) $>$ b) $<$ c) $=$ d) Twice
- (4) If $XA = XB$ and $YA = YB$, then \overleftrightarrow{XY} \overline{AB}
 a) $//$ b) \perp c) \equiv d) $=$
- (5) If M is the point of intersection of medians of $\triangle ABC$, D is midpoint of \overline{BC} , then $AD =$
 a) 2 AM b) 4 MD c) $\frac{2}{3}$ MD d) $\frac{3}{2}$ AM
- (6) The measures of exterior angle of equilateral triangle = $^\circ$
 a) 60 b) 120 c) 180 d) 360

Q2 Complete each of the following:

- 1) In $\triangle ABC$, if $AB = AC$, $m(\angle A) = 70^\circ$, then $AB <$
- 2) In $\triangle ABC$, if $m(\angle A) = 30^\circ$ and $m(\angle B) = 90^\circ$, then $BC =$ AC

3) In opposite figure:

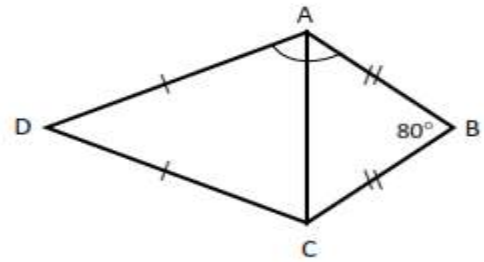
$$X + y = \text{.....}^\circ$$



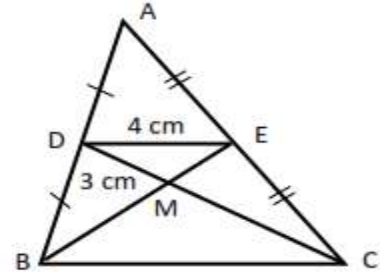
- 4) If the measure of the vertex angle of an isosceles triangle is 80° , then the measure of each of two base angles =
- 5) The longest side in the right angled triangle is

Q3 [A] In the opposite figure

$AD = DC$, $AB = BC$
 $m(\angle B) = 80^\circ$, $m(\angle BAD) = 114^\circ$
Find $m(\angle D)$

**[B] In the opposite figure**

D is midpoint of \overline{AB} , E is midpoint of \overline{AC}
 $DE = 4\text{ cm}$, $DM = 3\text{ cm}$, $BE = 6\text{ cm}$
Find the perimeter of $\triangle BMC$

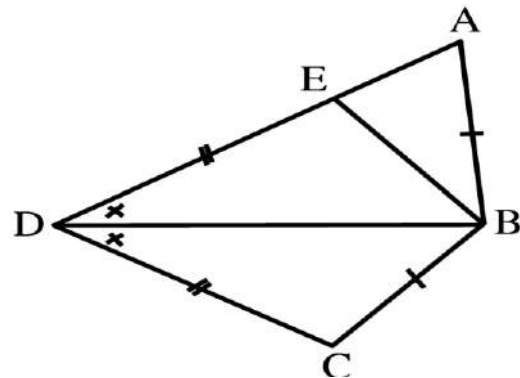
**Q4 [A] In the opposite figure**

In the opposite figure

$BA = BC$ and $DE = DC$,
 \overline{DB} bisects $\angle ADC$

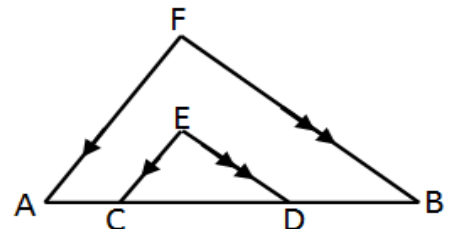
Prove that:

$$(\angle A) + m(\angle C) = 180^\circ$$

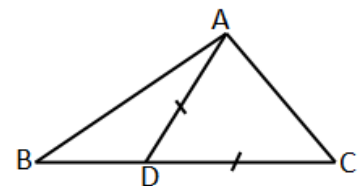
**[B] In the opposite figure**

$BF > FA$, $\overline{ED} \parallel \overline{FB}$, $\overline{FA} \parallel \overline{EC}$

Prove that: $ED > EC$

**Q5 [A] In the opposite figure**

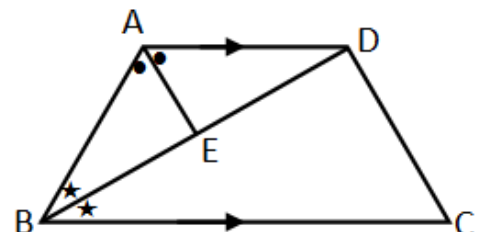
$AD = DC$ Prove that $BC > AB$

**[B] In the opposite figure**

$\overline{AD} \parallel \overline{BC}$, \overline{BD} bisects $\angle ABC$

\overline{AE} bisects $\angle BAD$

Prove that: $\overline{AE} \perp \overline{BD}$



◆◆◆
 End of the questions

GEOMETRY – MODEL No**9****Q1** Choose the correct answer:**(1)** In $\triangle ABC$, $m(\angle A) = 3 m(\angle B)$, then $AC \dots\dots\dots BC$

- a) = b) \equiv c) > d) <

(2) The numbers 5, 4, can be lengths of sides of a triangle

- a) 8 b) 9 c) 10 d) 12

(3) If $\triangle ABC$ is right angled at **B**, then.....

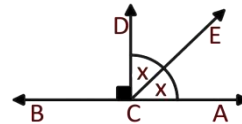
- a) $AC < AB$ b) $AC > BC$ c) $AB < AC$ d) $BC > AC$

(4) If $A > B$, $C > D$, then $A + C \dots\dots\dots B + D$

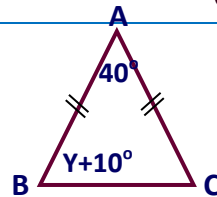
- a) > b) = c) < d) \leq

(5) In the opposite figure:Value of $X = \dots\dots\dots^\circ$

- a) 30 b) 45 c) 60 d) 90

**(6)** In the opposite figure:Value of $Y = \dots\dots\dots^\circ$

- a) 30 b) 40 c) 60 d) 70

**Q2** Complete each of the following:

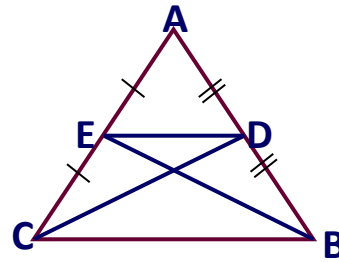
- 1) The point of intersection of the medians of the triangle divides each of them in the ratio of From the base
- 2) The base angles of the isosceles triangle are
- 3) The longest side in the right angled triangle is
- 4) In $\triangle ABC$, $m(\angle A) = 60^\circ$, $AB = BC$, then the number of axes of symmetry of $\triangle ABC = \dots$
- 5) The measure of exterior angle of the equilateral triangle is $^\circ$

Q3 [A] In the opposite figure:

$BC = 10 \text{ cm}$, $MB = 5 \text{ cm}$

$MC = 6 \text{ cm}$

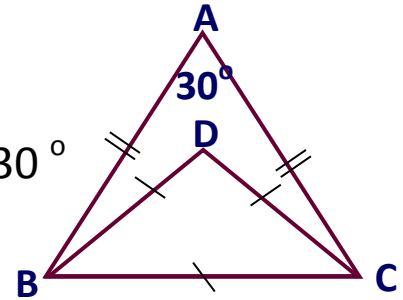
Find the perimeter of $\triangle EMD$



[B] In the opposite figure:

$AB = AC$, $\triangle BDC$ is equilateral , $m(\angle A) = 30^\circ$

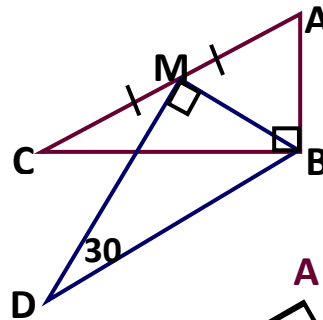
Find by proof: $m(\angle ACD)$



Q4 [A] In the opposite figure:

Prove that:

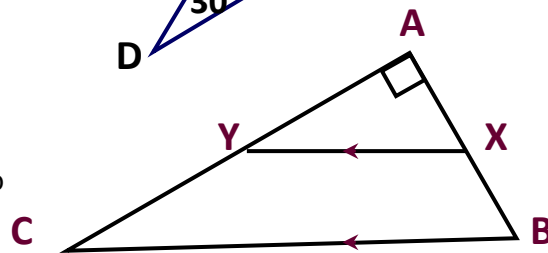
$AC = BD$



[B] In the opposite figure

$AC > AB$, $m(\angle A) = 90^\circ$

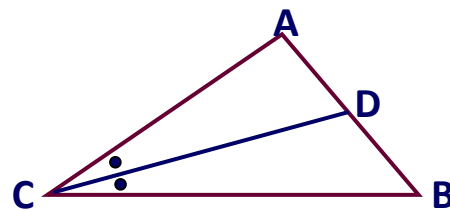
Prove that: $m(\angle AXY) > 45^\circ$



Q5 [A] In the opposite figure:

\overline{DC} bisect $\angle ACB$

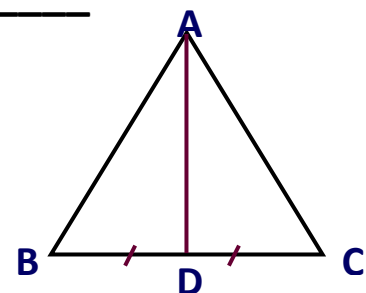
Prove that: $BC > BD$



[B] In the opposite figure

Prove that:

Perimeter of $\triangle ABC > 2 AD$



End of the questions

GEOMETRY – MODEL No**10****Q1** Choose the correct answer:

(1) The point of intersection of the medians of triangle divides each median in the ratio from vertex.

- a) 1 : 2 b) 3 : 2 c) 2 : 3 d) 4 : 2

(2) In $\triangle ABC$, if $m(\angle C) = 80^\circ$, $m(\angle B) = 30^\circ$. then AC BC

- a) = b) < c) > d) \leq

(3) The axis of symmetry of a line segment is straight line

- a) Perpendicular to it c) Parallel to it
b) Bisects it d) Perpendicular at midpoint

(4) In any triangle, $XY + YZ - XZ$ zero

- a) > b) < c) = d) \leq

(5) An isosceles triangle in which the lengths of two of its sides are 4 cm and 9 cm then the length of the third side equals

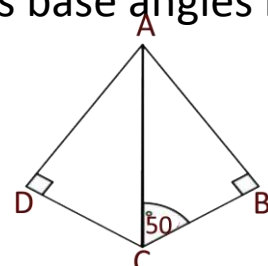
- a) 4 b) 5 c) 9 d) 13

(6) If $AB \cap CD = \emptyset$, then AB , CD are

- a) Coincides b) Perpendicular c) Intersecting d) Parallel

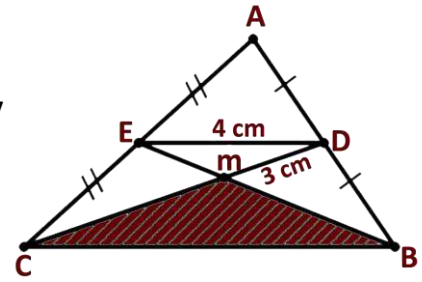
Q2 Complete each of the following:

- If measure of an angle of an isosceles is 60° , then the triangle....
- The bisector of vertex in an isosceles triangle,
- In $\triangle XYZ$, if $m(\angle X) = 50^\circ$, $m(\angle Y) = 60^\circ$, then the triangle has Axes of symmetry
- In isosceles triangle, if the measure of one of its base angles is 40° , then the measure of its vertex $^\circ$
- In the opposite figure:
 $\triangle ABC \equiv \triangle ACD$, $m(\angle CAD) =$

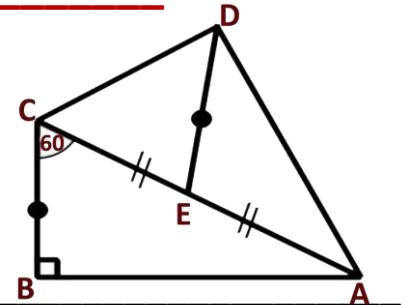


Q3 A) In the opposite figure:

D, E are midpoints of \overline{AB} , \overline{AC} respectively
 $\overline{BE} \cap \overline{CD} = \{m\}$. if $DE = 4$ cm, $DM = 3$ cm
 $BE = 6$ cm. Find perimeter of $\triangle BMC$

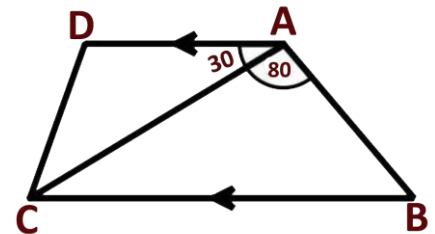
**B) In the opposite figure:**

$m(\angle B) = 90^\circ$, $m(\angle ACB) = 60^\circ$
 \overline{DE} is median in $\triangle DAC$, $BC = DE$
 Prove that: $m(\angle ADC) = 90^\circ$

**Q4 A) In the opposite figure:**

$\overline{AD} \parallel \overline{BC}$, $m(\angle BAC) = 80^\circ$,
 $m(\angle DAC) = 30^\circ$

Prove that: $BC > AC$

**B) In the opposite figure:**

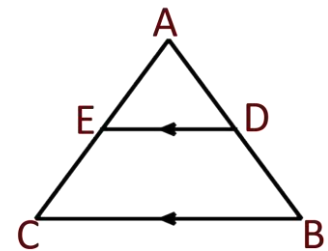
Arrange ascending the measures of $\triangle ABC$ where: $AC = 12$ cm,
 $BC = 13$ cm, perimeter of $\triangle ABC = 30$ cm

Q5 A) In the opposite figure:

$\triangle ABC$, $\overline{DE} \parallel \overline{BC}$, $AD = AE$

Prove that:

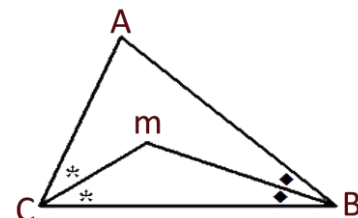
- ① $AB = AC$ ② $DB = EC$

**B) In the opposite figure:**

$\triangle ABC$, $AC > AB$

\overline{BM} bisects $(\angle ABC)$, \overline{CM} bisects $(\angle ACB)$

Prove that: $MC < MB$



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 End of the questions

Geometry Examinations of Governorates 2012

Cairo

1

Sharabia Educational Zone - Talale El Mostakabel Exp. Lang. School

Answer the following questions:

1 Choose the correct answer:

- 1) The number of axes of symmetry in the equilateral triangle =
 a) 1 b) 2 c) 3 d) nothing
- 2) In a triangle ABC: If $AC = BC$ and $m(\angle C) = 80^\circ$, then $m(\angle A) =$
 a) 80° b) 50° c) 100° d) 40°
- 3) $\triangle XYZ$, $m(\angle X) = 60^\circ$, $m(\angle Y) = 40^\circ$, then XZ ZY
 a) $<$ b) $>$ c) $=$ d) nothing
- 4) If \overline{XE} is a median in $\triangle XYZ$, M is the point of intersection of its medians, then $EM =$ XE
 a) $\frac{1}{2}$ b) 2 c) $\frac{1}{3}$ d) $\frac{2}{3}$
- 5) $\triangle ABC$ if $m(\angle A) = 30^\circ$ and $m(\angle B) = 90^\circ$, then $AC =$
 a) $\frac{1}{2} BC$ b) $2 BC$ c) $2 AB$ d) BC

2 Complete the following:

- 1) The two base angles in an isosceles triangle are
- 2) The bisector of the vertex angle of an isosceles triangle the base and is to it.
- 3) The sum of the lengths of any two sides in a triangle is the length of the third side.
- 4) If ABC is a right-angled triangle at B, $AB = 6$ cm, $BC = 8$ cm, if \overline{BD} is a median of triangle ABC, then $BD =$ cm.
- 5) In triangle ABC, if $BC > AB$, then $m(\angle A)$ $m(\angle C)$

3 In the opposite figure:

\overline{BE} , \overline{CD} , are medians in $\triangle ABC$,

$MB = 6$ cm., $MC = 8$ cm.,

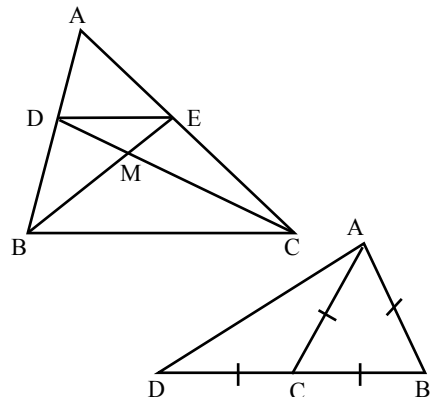
$BC = 12$ cm.,

Find: The perimeter of $\triangle MDE$

4 (a) In the opposite figure:

$AB = BC = AC = DC$

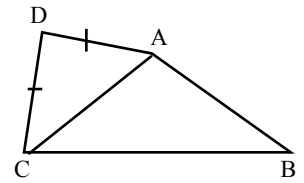
Prove that: $m(\angle BAD) = 90^\circ$



(b) In the opposite figure:

ABCD is a quadrilateral in which: $AD = DC$,
 $BC > AB$

Prove that: $m(\angle BAD) > m(\angle BCD)$

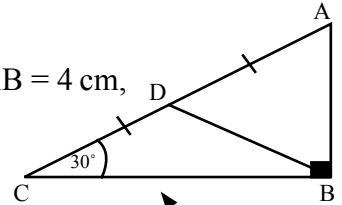


5 (a) In the opposite figure:

$m(\angle B) = 90^\circ$, $m(\angle C) = 30^\circ$, \overline{BD} is a median, $AB = 4$ cm,

Complete:

$AC = \dots\dots\dots$ cm, $BD = \dots\dots\dots$ cm, $AD = \dots\dots\dots$ cm.



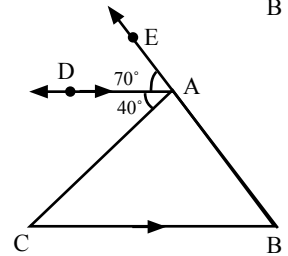
(b) In the opposite figure:

$E \in \overrightarrow{BA}$, $\overrightarrow{AD} \parallel \overrightarrow{BC}$,

$m(\angle DAE) = 70^\circ$,

$m(\angle DAC) = 40^\circ$,

Prove that: $AC > AB$



Cairo

2

El-Nozha Educational Zone - El-Sayed Khadiga Language School

Answer the following questions:

1 Choose the correct answer:

- 1) In $\triangle ABC$: $m(\angle B) = 80^\circ$, $m(\angle C) = 50^\circ$, then $BC \dots\dots\dots AB$
a) $>$ b) $<$ c) $=$ d) \equiv
- 2) The lengths 6 cm, 7 cm and $\dots\dots\dots$ can be lengths of the sides of a triangle.
a) 15 cm b) 13 cm c) 18 cm d) 11 cm
- 3) In $\triangle ABC$ if $m(\angle A) = 30^\circ$ and $m(\angle B) = 90^\circ$ then $AC = \dots\dots\dots$
a) $\frac{1}{2} BC$ b) $2 BC$ c) $2 AB$ d) BC
- 4) The point of intersection of the medians of the triangle divides each of them with ratio $\dots\dots\dots$ from the vertex.
a) $1 : 2$ b) $3 : 1$ c) $1 : 3$ d) $2 : 1$
- 5) In $\triangle ABC$, $m(\angle A) = 50^\circ$ and $m(\angle B) = 100^\circ$ then
a) $AB > AC$ b) $AC > AB$ c) $BC > AC$ d) $AB = BC$

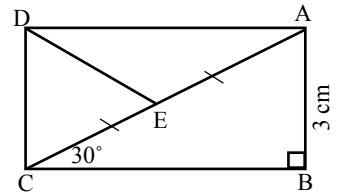
2 Complete:

- 1) The measure of exterior angle of the equilateral $\triangle = \dots\dots\dots^\circ$
- 2) If $\triangle ABC = \triangle XYZ$, then $AC \equiv \dots\dots\dots$
- 3) The longest side in a right-angled triangle is $\dots\dots\dots$
- 4) The perpendicular bisector of a line segment is called $\dots\dots\dots$
- 5) The bisector of the vertex angle of an isosceles triangle is $\dots\dots\dots$

- 3 (a) In the opposite Fig.: $m(\angle B) = m(\angle D) = 90^\circ$

$m(\angle ACB) = 30^\circ$ and \overline{DE} is a median of $\triangle ADC$.

If $AB = 3$ cm, find with proof the length of \overline{DE} .

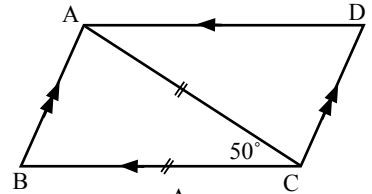


- (b) in the opposite Fig.:

ABCD is a parallelogram, $CA = CB$

and $m(\angle ACB) = 50^\circ$.

Find with proof $m(\angle D)$



- 4 (a) In the opposite Fig.: E and D are the midpoints

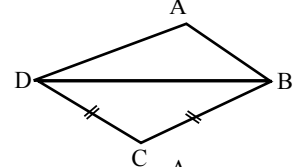
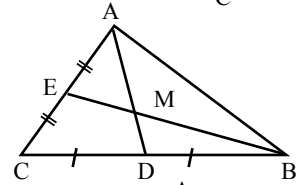
of \overline{AC} and \overline{CB} . If $AD = 4.5$ cm and $BM = 4$ cm

Find the length of \overline{MD} and \overline{BE}

- (b) In the opposite Fig. ABCD is a quadrilateral

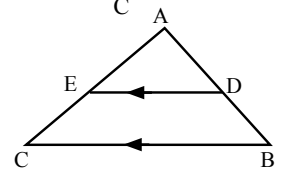
in which $AD > AB$ and $BC = CD$

Prove that: $m(\angle ABC) > m(\angle ADC)$.



- 5 In the opposite Fig.

$\overline{AC} > \overline{AB}$, $\overline{DE} \parallel \overline{BC}$
Prove that $AE > AD$



Cairo

3

El-Zeitoun Directorate

- 1 Choose the correct answer:

- The number of axes of symmetry of the equilateral triangle is
a) 3 b) 1 c) 2 d) 4
- The medians of the triangle intersect at
a) one point b) two points c) 3 points d) 4 points
- The sum of lengths of any two sides in any triangle the length of the third side.
a) is less than b) is greater than c) equals d) otherwise
- In the parallelogram, the two diagonals are
a) equal in length b) perpendicular c) bisecting each other d) parallel
- If $\triangle ABC$ is right-angled at B, then AB AC
a) \equiv b) \perp c) $<$ d) $>$

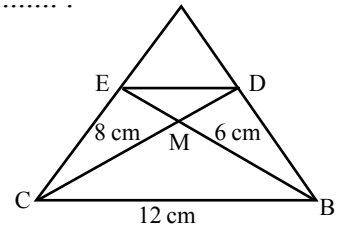
- 2 Complete the following statements:

- The longest side in the right-angled triangle is
- The point of intersection of the medians of the triangle divides each of them with the ratio : from the base.

- 3) The length of the side opposite the angle of measure 30° in the right-angled equals
- 4) The perpendicular bisector of a line segment is called
- 5) In the parallelogram, each two opposite sides are

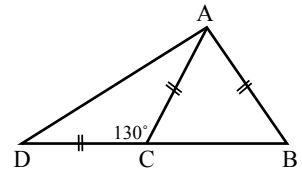
3 a) In the opposite figure:

\overline{BE} , and \overline{CD} are two medians
in $\triangle ABC$, $MB = 6$ cm, $MC = 8$ cm
and $CB = 12$ cm.
Find the perimeter of $\triangle EMD$



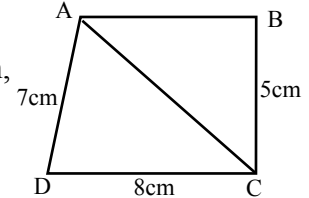
(b) In the opposite Figure:

$CD = CA = AB$, $\angle C = 130^\circ$
and $m(\angle ACD) = 130^\circ$
Find by proof $m(\angle BAD)$



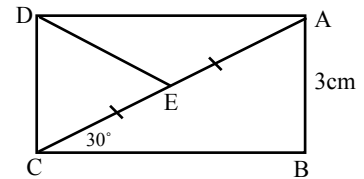
4 In the opposite figure:

ABCD is a quadrilateral in which $AB = 4$ cm, $BC = 5$ cm,
 $CD = 8$ cm and $AD = 7$ cm
Prove that: $m(\angle BAD) > m(\angle BCD)$



5 In the opposite figure:

$m(\angle ABC) = m(\angle ADC) = 90^\circ$
 $m(\angle ACB) = 30^\circ$ and
 \overline{DE} is a median of $\triangle ADC$
if $AB = 3$ cm,
Find the length of \overline{DE}



Cairo

4

Abdeen Educational Zone - Mohamed Fared E.L.S

1 Complete each of the following:

- a) The longest side in the right-angled triangle is
- b) If the lengths of two sides in the isosceles triangle are 3 cm and 8 cm, then the length of the third side = cm.
- c) The length of the side opposite to the angle whose measure = 30° in the right-angled triangle equals
- d) in $\triangle XYZ$: if $m(\angle X) > m(\angle Y) > m(\angle Z)$ then $> XZ >$
- e) The point of intersection of the medians of a triangle divides each median by the ratio from the base.

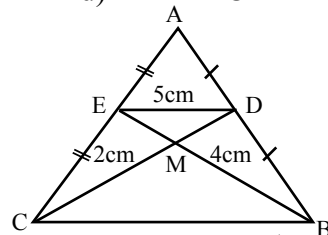
2 Choose the correct answer:

- 1) The number of the axes of symmetry of the equilateral triangle is
a) 1 b) 2 c) 3 d) zero
- 2) In $\triangle ABC$: If $m(\angle A) = 75^\circ$, $m(\angle C) = 50^\circ$, then AC AB
a) $>$ b) $=$ c) \leq d) $<$

- 3) The sum of lengths of any two sides in the triangle the length of the third side.
 a) $>$ b) \geq c) \leq d) $<$
- 4) \overline{AD} is a median of $\triangle ABC$ where M is the point of intersection of its median, then $AM = \dots\dots\dots \overline{AD}$
 a) $\frac{1}{3}$ b) $\frac{2}{3}$ c) $\frac{1}{2}$ d) 2
- 5) If \overline{AD} is a median of $\triangle ABC$, then
 a) $AB = BC$ b) $BD = DC$ c) $AD + BC$ d) $AB = AC$

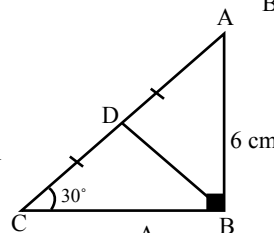
3 a) In the opposite figure:

\overline{BE} and \overline{CD} are two medians in $\triangle ABC$,
 $ME = 2$ cm, $MD = 4$ cm and $DE = 5$ cm
 Find: the perimeter of $\triangle MBC$



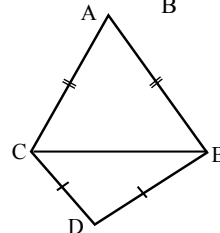
(b) In the opposite figure:

$\triangle ABC$ is a right-angled triangle at B,
 D is the midpoint of \overline{AC} , $m(\angle C) = 30^\circ$ and $AB = 6$ cm
 Find the length of \overline{AC} and \overline{BD}



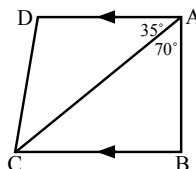
4 a) In the opposite figure:

$AB = AD$,
 $BC = CD$
 Prove that $\angle ABC \equiv \angle ADC$



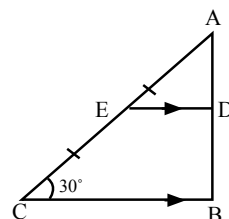
(b) in the opposite figure:

$\overline{AD} \parallel \overline{BC}$, $(\angle BAC) = 70^\circ$
 and $m(\angle DAC) = 35^\circ$
 prove that: $AC > BC$



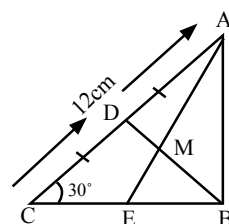
5 a) In the opposite figure:

$\triangle ABC$ is a triangle in which
 $AC > AB$, $\overline{DE} \parallel \overline{BC}$
 prove that: $AE > AD$



(b) In the opposite figure:

$\triangle ABC$ is a right-angled triangle at B,
 \overline{AE} and \overline{BD} are medians if $AC = 12$ cm.
 Calculate the length of each \overline{BD} and \overline{MD} .



1 Choose the correct answer:

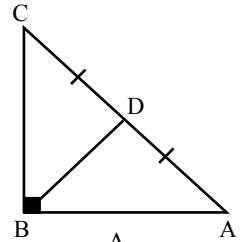
- The number of axis of symmetry in the scalene triangle is..... .
a) 1 b) 2 c) 4 d) zero
- The lengths 9 cm, 4 cm and may be the lengths of isosceles triangle.
a) 3 cm b) 4 cm c) 5 cm d) 9 cm
- In triangle the sum of the lengths of two sides the length of the third side.
a) $>$ b) $<$ c) $=$ d) \leq
- $\triangle ABC$ in which $m(\angle A) = 40^\circ$ and $m(\angle B) = 70^\circ$, then AB AC .
a) $>$ b) $=$ c) \equiv d) $<$
- The measure of the exterior angle of an equilateral triangle
a) 30° b) 120° c) 60° d) 90°

2 Complete each of the following:

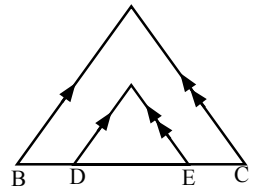
- The point of intersection of the medians of a triangle divides each median in the ratio from the vertex.
- In the right- angled triangle, the longest side in it is called
- In the right-angled triangle, the opposite side to angle with measure equals 30° = the length of the hypotenuse.
- In an isosceles triangle, if any angle has a measure of 60° , the triangle is
- $\triangle ABC$ in which $m(\angle B) = 70^\circ$ and $m(\angle C) = 35^\circ$, the longest side in length is

3 (a) In the opposite figure:

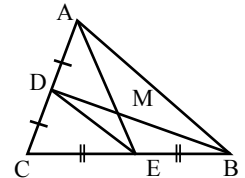
ABC is a right-angled triangle at B ,
 D is the midpoint of \overline{AC} , $m(\angle A) = 30^\circ$,
 $BC = 5$ cm. Find: the length of \overline{BD} .

**(b) in the opposite Figure:**

$D \in \overline{BC}$, $E \in \overline{BC}$, $\overline{AB} \parallel \overline{FD}$
 and \overline{AC} , \overline{FE} , if $AB = AC$. prove that:
 FDE is an isosceles triangle.

**4 (a) In the opposite figure:**

$\triangle ABC$ in which D and E midpoint of \overline{AC} , \overline{BC}
 $\overline{AE} \cap \overline{BD} = \{M\}$
 $AB = 12$ cm, $AE = 9$ cm, $BM = 8$ cm
 Calculate the perimeter of $\triangle DME$



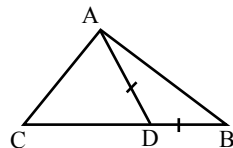
- (b)** $\triangle XYZ$ in which $XY = 8$ cm, $YZ = 10$ cm and $ZX = 7$ cm. Ordere the measures of its angles ascendingly.

5 In the opposite figure:

ABC is a triangle in which, $BC > AB$

$D \in \overline{BC}$ such that $AD = BD$.

Prove that: $(\angle BAC)$ is an obtuse angle.



Cairo

6

Al Salam Education Zone - Anwer Alsadat EXp. Lang. School

1 Choose the correct answer:

- 1) Number of axes of symmetry of an equilateral triangle is
a) 0 b) 1 c) 2 d) 3
- 2) An isosceles triangle, one of its base angles has measure 50° , then the measure of the vertex angle =
a) 50° b) 60° c) 70° d) 80°
- 3) \overline{AD} is a median of triangle ABC, and M is the point of intersection of the medians, then $AM = \dots\dots\dots AD$.
a) $\frac{1}{3}$ b) $\frac{2}{3}$ c) $\frac{1}{2}$ d) $\frac{1}{4}$
- 4) If the lengths of two sides of a triangle are 4 cm and 8 cm., then the length of the third side =cm.
a) 3 b) 4 c) 8 d) 12
- 5) In a triangle ABC: if $m(\angle A) = 80^\circ$, $m(\angle C) = 60^\circ$, then $AB \dots\dots\dots BC$.
a) $>$ b) $<$ c) $=$ d) \geq

2 Complete:

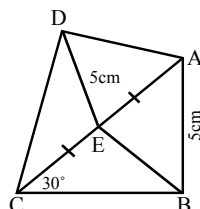
- 1) If XYZ is a right-angled triangle at Y, then the longest side is
- 2) The sum of measures of any two consecutive angles in the parallelogram =
- 3) The straight line perpendicular to the midpoint of a line segment is called
- 4) The bisectors of the vertex angle of an isosceles triangle and
- 5) The measure of the exterior angle of the equilateral triangle =°

3 a) In the opposite figure:

ABC is a right-angled triangle at B, $m(\angle ACB) = 30^\circ$

, $AB = 5$ cm. Point E bisects \overline{AC} if $DE = 5$ cm

, then prove that $m(\angle ADC) = 90^\circ$

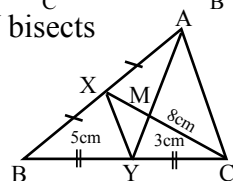


(b) In the opposite figure: ABC is a triangle, X bisects \overline{AB} , Y bisects

\overline{BC} , $XY = 5$ cm, $\overline{XC} \cap \overline{AY} = \{M\}$ where:

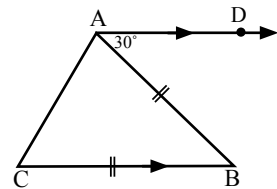
$CM = 8$ cm, $YM = 3$ cm. Find with proof

the length of : 1) \overline{AM} 2) \overline{MX} 3) \overline{AC}



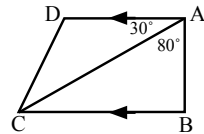
4 a) In the opposite figure:

ABC is a triangle in which $AC = BC$,
 $\overrightarrow{AD} \parallel \overrightarrow{BC}$, $m(\angle DAC) = 30^\circ$. Find
 the measures of the angles in $\triangle ABC$



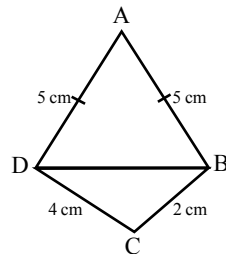
(b) In the opposite figure:

$\overrightarrow{AD} \parallel \overrightarrow{BC}$, $m(\angle BAC) = 80^\circ$, $m(\angle DAC) = 30^\circ$
 Prove that: $BC > AB$



5 In the opposite figure:

ABCD is a quadrilateral in which $AB = AD = 5\text{ cm}$,
 $BC = 2\text{ cm}$, $DC = 4\text{ cm}$ Prove that:
 $m(\angle ABC) > m(\angle ADC)$



Cairo

7

Ain Shams Administration - Helmiat Al Zaiton - Helmiat Al Zaiton Extinguished Exp. School

1 Complete the following:

- 1) The longest side length in the right-angled triangle is
- 2) The base angles of the isosceles triangle are
- 3) In a triangle, the smallest angle in measure is opposite to
- 4) The medians of a triangle are
- 5) If the angles of a triangle are congruent, then the triangle is

2 Choose the correct answer:

- 1) In $\triangle ABC$: if $m(\angle A) = 60^\circ$, $m(\angle B) = 40^\circ$, then the longest side in length is

 (\overline{AB} , \overline{CA} , \overline{BC} , hypotenuse)
- 2) In the $\triangle ABC$ if $XY = YZ$, $m(\angle Z) = 50^\circ$ then the $m(\angle X) =$
 (50° , 80° , 130° , 100°)
- 3) $\triangle ABC$ if right-angle triangle at B, if $m(\angle A) = 30^\circ$, $BC = 10\text{ cm}$, then $AC =$

 (5 cm , 10 cm , 20 cm , 15 cm)
- 4) The measure of exterior angle of an equilateral triangle =
 (30° , 60° , 120° , 90°)
- 5) If the lengths of two sides in an isosceles triangle were: 3 cm , 7 cm , then the
 length of the third side =
 ($3\text{ cm} - 7\text{ cm} - 4\text{ cm} - 5\text{ cm}$)

3 (a) In the opposite figure:

ABC is a triangle in which \overline{BD} bisects $\angle ABC$
and intersects \overline{AC} at D, $\overrightarrow{DE} \parallel \overline{CB}$

$$\overrightarrow{DE} \parallel \overline{AB} = \{E\}$$

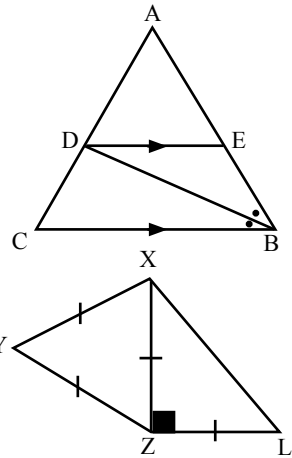
Prove that $BE = ED$

(b) In the opposite figure:

XYZL is quadrilateral in which

$$XY = ZL = ZX = XY, m(\angle ZXL) = 90^\circ$$

find the $m(\angle XLZ)$, $m(\angle LXY)$

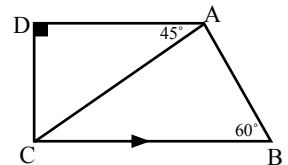


4 (a) In the opposite figure:

$\overline{AD} \parallel \overline{BC}$, $m(\angle D) = 90^\circ$, $m(\angle B) = 60^\circ$,
 $m(\angle DAC) = 45^\circ$

First: Prove that $\overline{AC} \perp \overline{BC}$

Second: Prove that $\triangle DAC$ is an isosceles triangle.



5 (a) In the opposite figure:

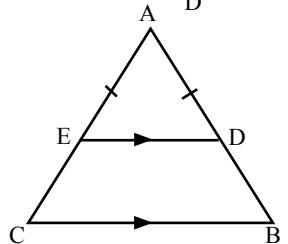
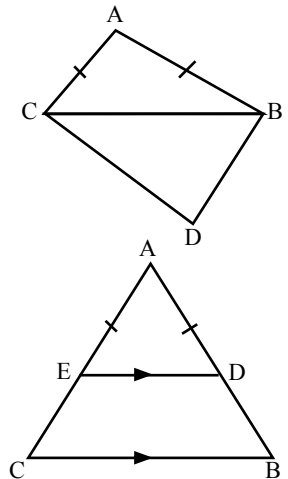
$$AB = AC, DC > DB$$

Prove that: $m(\angle ABD) > m(\angle ACD)$

(b) In the opposite figure:

$$\overline{DE} \parallel \overline{BC}, AD = AE$$

Prove that: $AB = AC$.



Giza

8

Giza Governorate - Omrania zone - El-Sadat E.L.S

1 Choose the correct answer from those between parentheses:

1) If \overline{AD} is a median of $\triangle ABC$ and M is the point of intersection of the medians
then $AM = \dots\dots\dots AD$. $(\frac{1}{3}, \frac{2}{3}, \frac{1}{2}, \frac{1}{4})$

2) If $\triangle ABC$, $m(A) = 80^\circ$, $m(C) = 70^\circ$ then $AB \dots\dots BC$.

$(>, <, =, \geq)$

3) If the lengths of two sides of triangle are 3,7 then the length of 3rd side is $\dots\dots$.

$(3, 4, 8, 10)$

4) ΔABC , $m(\angle A) = 30^\circ$ $m(\angle B) = 90^\circ$ then $AC = \dots\dots\dots$.

$(\frac{1}{2} BC , 2 BC , 2 AB , BC)$

5) In the isosceles triangle if one of its base angle of measure 40° then its vertex angle is of $\dots\dots\dots$.
 $(40^\circ, 80^\circ, 100^\circ, 60^\circ)$

2 Complete the following:

- 1) The measure of the exterior angle of the equilateral triangle is $\dots\dots\dots^\circ$
- 2) The longest side in the right angled triangle is $\dots\dots\dots$.
- 3) The number of symmetrical axis in the equilateral triangle is $\dots\dots\dots$.
- 4) The bisector of the vertex angle of an isosceles triangle bisects the base and is $\dots\dots\dots$.
- 5) The medians of triangle are $\dots\dots\dots$.

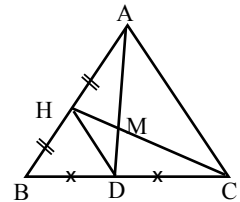
3 In the opposite figure:

D midpoint of \overline{BE} , H is a midpoint

of \overline{AB} , $\overline{AD} \cap \overline{CH} = \{M\}$

$AD = 9$ cm

$AC = 12$ cm, $CM = 10$ cm, find perimeter of ΔMDH



4 (a) In the opposite figure:

ABCD is quadrilateral

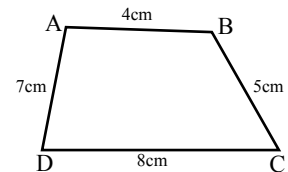
$AB = 4$ cm

$BC = 5$ cm

$CD = 8$ cm

$AD = 7$ cm

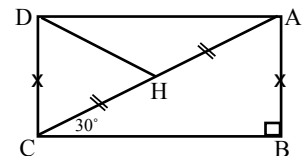
Prove that: $m(\angle BAD) > m(\angle BCD)$.



(b) $m(\angle B) = 90^\circ$ $m(\angle ACB) = 30^\circ$.

$AB = DH$, H is midpoint of \overline{AC}

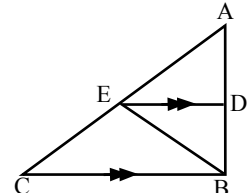
Prove that $m(\angle ADC) = 90^\circ$.



5 (a) In the opposite figure:

$\overline{ED} \parallel \overline{BC}$ and \overline{BE} bisects $\angle ABC$

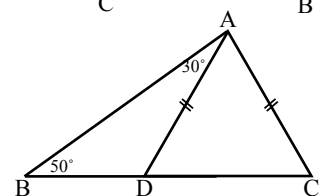
Prove that: ΔDBE is an isosceles Δ



(b) In the opposite figure:

$AC = AD$, $m(\angle DAB) = 30^\circ$ $m(\angle B) = 50^\circ$

Find $m(\angle DAC)$



1 Choose the correct answer from the given ones:

- 1) The area of rhombus whose diagonals lengths 6 cm, 8cm = cm²
 a) 48 b) 24 c) 14 d) 12
- 2) In $\triangle ABC$, if $(AC)^2 = (AB)^2 + (BC)^2$, then $\angle B$ is angle.
 a) right b) obtuse c) acute d) straight
- 3) 1) The number of axes of symmetry in the equilateral triangle =
 a) 1 b) 2 c) 3 d) nothing
- 4) If the area of a parallelogram is 35 cm² and its height is 5 cm, then the length of the corresponding base iscm.
 a) 5 b) 7 c) 9 d) 20
- 5) A square with perimeter 16 cm/ then its area =cm²
 a) 32 b) 40 c) 16 d) 20

2 Complete each of the following:

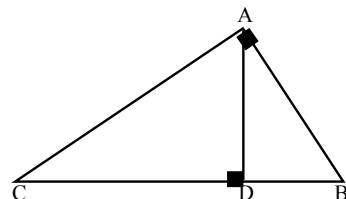
- 1) The median of a triangle divides its surface into two triangles are
- 2) The two triangles are similar if the corresponding are proportional.
- 3) If the lengths of two parallel bases in a trapezium are 8 cm and 10 cm and its height is 6 cm then its area =cm²

- 4) In the opposite figure:

$\triangle ABC$ is right - angled at A
 and $\overline{AD} \perp \overline{BC}$ then

$(AB)^2 = \dots \times \dots$

- 5) Two triangles which have the same base and the vertices opposite this base on a straight line parallel to the base



3 (a) In the opposite figure:

$AB = BC = AC = DC$

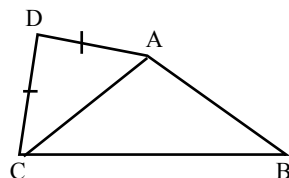
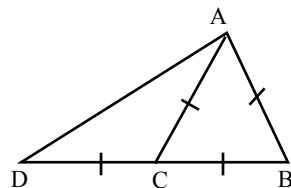
Prove that: $m(\angle BAD) = 90^\circ$

(b) In the opposite figure:

ABCD is a quadrilateral in which: $AD = DC$,

$BC > AB$

Prove that: $m(\angle BAD) > m(\angle CAD)$

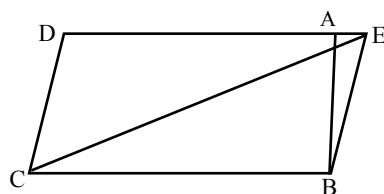


4 (a) In the opposite figure:

$F \in \overrightarrow{DA}$ if the area of the parallelogram

$ABCD = 40 \text{ cm}^2$

Find area of $\triangle FBC$

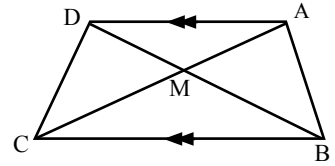


(b) In the opposite figure:

$$\overline{AD} \parallel \overline{BC}, \overline{AC} \cap \overline{DB} = \{M\}$$

Prove that

The area of $\triangle AMB$ = the area of $\triangle DMC$



5 In the opposite figure:

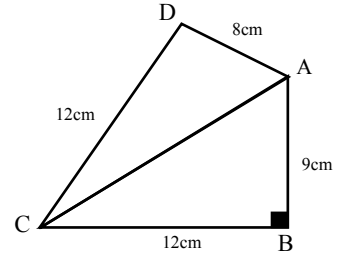
$$m(\angle B) = 90^\circ, AB = 9\text{cm}$$

$$BC = 12\text{ cm}, CD = 17\text{ cm}$$

$$\text{And } AD = 8\text{ cm}$$

1) Find the length of \overline{AC}

2) Prove that: $m(\angle DAC) = 90^\circ$



Giza

10

Dokki Directorate - Gamal Abd El-Nasser Exp.L.S.

1 Choose the correct answer from the given ones:

- 1) The number of medians of an obtuse angled triangle is
a) zero b) 1 c) 2 d) 3
- 2) In a parallelogram ABCD if $m(\angle A) = 70^\circ$, then $m(\angle B) =$
a) 70° b) 90° c) 110° d) 20°
- 3) $\triangle ABC$: if $m(\angle A) = 30^\circ$, $m(\angle B) = 90^\circ$, then $BC =$
a) $\frac{1}{2} AB$ b) $\frac{1}{2} AC$ c) $2AB$ d) $2AC$
- 4) Each of the base angles of the isosceles triangle is angle.
a) acute b) right c) obtuse d) straight
- 5) $\triangle ABC$: $m(\angle B) = 70^\circ$, $m(\angle C) = 30^\circ$ then
a) $BC > AB$ b) $AB > BC$ c) $AC > BC$ d) $AB > AC$

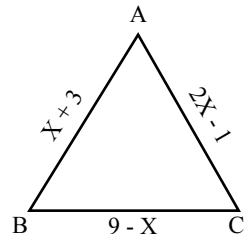
2 Complete:

- 1) The perpendicular to a line segment from its mid-point is called for that line segment.
- 2) The median of an isosceles triangle drawn from the vertex bisects
- 3) $\triangle ABC$, if $AB = 5\text{ cm}$ and $BC = 7\text{ cm}$, then $AC \in].....,.....[$
- 4) The longest side in the right angled triangle is
- 5) $\triangle ABC$: $m(\angle B) = 40^\circ$, $m(\angle C) = 80^\circ$ then the number of axes of symmetry of $\triangle ABC =$

3 A- In the opposite figure:

$$\triangle ABC, \text{ in which } m(\angle B) = m(\angle C)$$

Find: The perimeter of $\triangle ABC$.

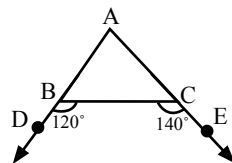


B- In the opposite figure:

$$m(\angle DBC) = 120^\circ$$

$$, m(\angle ECB) = 140^\circ$$

Prove that $CB > AB$

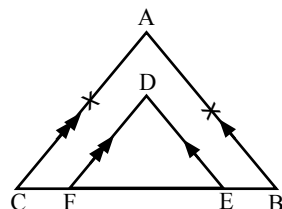


4 In the opposite figure:

$$AB = AC, \overline{BE} \parallel \overline{AB}$$

$$, \overline{DF} \parallel \overline{AC}$$

Prove that $DE = DF$



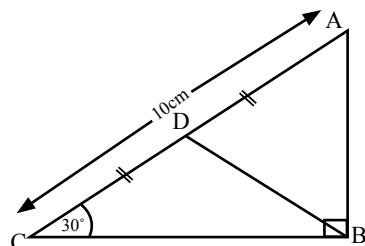
5 A- In the opposite figure:

$\triangle ABC$ in which: $m(\angle B) = 90^\circ$

, $m(\angle C) = 30^\circ$, D is the mid-point of \overline{AC}

, $AC = 10\text{cm}$. Find the perimeter of $\triangle ABD$

Prove that $m(\angle B) > m(\angle C)$

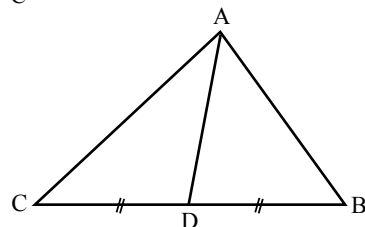


B- In the opposite figure:

Perimeter of $\triangle ADC >$ perimeter of $\triangle ADB$

$$, BD = DC$$

Prove that $m(\angle B) > m(\angle C)$



Alexandria

11

Mid Educational Zone - El Orwa Exp.school for Boys

1 Complete the following:

- The vertex angle bisector in the isosceles triangle
- \overline{AD} is a median of $\triangle ABC$, M is the point of concurrence, then $AM:AD = \dots : \dots$
- Any point on the axis of symmetry of a line segment is at two equal distances from.....
- In any triangle: The sum of the lengths of any two sides is the length of the third side.
- ABCD is a parallelogram, $m(\angle A) = (3x + 4)^\circ$, $m(\angle B) = 5x^\circ$, then $m(\angle C) = \dots^\circ$

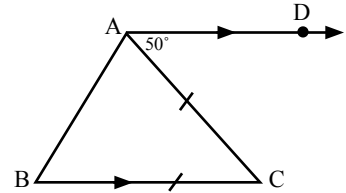
2 Choose the correct answer from the given ones:

- ABC is a triangle in which: $AB = 3\text{cm}$, $BC = 5\text{cm}$, then $AC \in \dots$
 $[2, 8], [2, 8], [9, 25], [2, 15]$

- b) Triangle ABC in which $AB > AC$, then $m(\angle B) \dots\dots\dots m(\angle C)$ [$>$, $<$, \geq , $=$]
- c) An isosceles triangle the lengths of two sides: 4 cm and 8 cm, then the length of the third side iscm. (3, 4, 13, 8)
- d) $\triangle ABC$, $AB = AC$, $m(\angle B) = (2x + 13)^\circ$, $m(\angle C) = (3x - 17)^\circ$, then $m(\angle A) = \dots\dots\dots^\circ$ ($34^\circ, 43^\circ, 73^\circ, 30^\circ$)
- e) $\triangle ABC$: if $m(\angle A) = 30^\circ$, $m(\angle B) = 90^\circ$, then $BC = \dots\dots\dots$
 $(\frac{1}{2} AB, \frac{1}{2} AC, 2AB, 2AC)$

3 A- In the opposite figure $\overrightarrow{DA} \parallel \overrightarrow{BC}$, $AC = BC$, $m(\angle DAC) = 50^\circ$

Find: $m(\angle ABC)$.



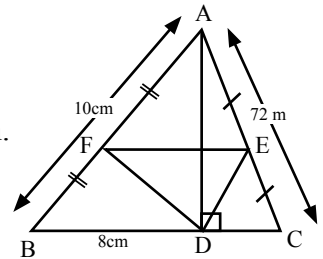
B- ABCD is a quadrilateral in which, $AB = 6$ cm. $BC = 4$ cm, $CD = 8$ cm, $DA = 7$ cm

Prove that: $m(\angle ABC) > m(\angle ADC)$.

4 In the opposite figure E, F are the midpoints of \overline{AB} , \overline{AC}

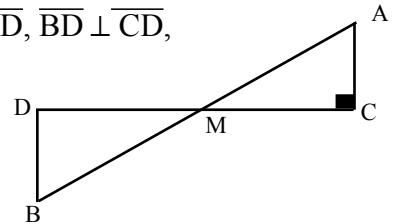
in $\triangle ABC$, $\overline{AD} \perp \overline{BC}$, $AB = 10$ cm, $BC = 8$ cm, $AC = 7$ cm.

Find: the perimeter of triangle DEF



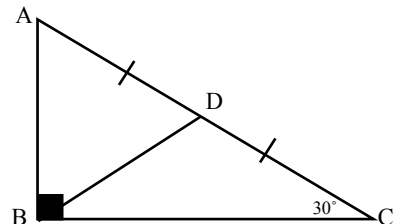
5 a) In the opposite figure $\overline{AB} \cap \overline{CD} = \{M\}$, $\overline{AC} \perp \overline{CD}$, $\overline{BD} \perp \overline{CD}$,

Prove that $AB > CD$



b) In the opposite figure \overline{BD} is the median of the right angled triangle ABC, $AC = 6$ cm, $m(\angle C) = 30^\circ$

Prove that $\triangle ABD$ is an equilateral triangle and find its perimeter.



1 Complete:

- 1) In any triangle the greatest angle in measure is opposite to
- 2) The number of axes of symmetry in the isosceles triangle =
- 3) The intersection point of the medians of a triangle divides each other from direction of the base in the ratio:
- 4) The medians of an isosceles triangle from the vertex angle
- 5) If the length of two sides in an isosceles triangle are 3cm and 7cm then the length of the third side =

2 Choose the correct answer:

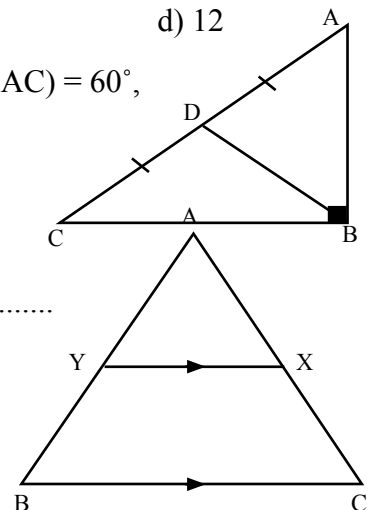
- 1) $\triangle ABC$ if $m(\angle B) = 70^\circ$, $m(\angle C) = 60^\circ$ then BC AB
 - a) $<$
 - b) $>$
 - c) \leq
 - d) \geq
- 2) The sum of lengths of any two sides in a triangle is the length of the third side.
 - a) $<$
 - b) $>$
 - c) \leq
 - d) \geq
- 3) In the right-angled triangle, the length of the median from the vertex of the right angle = the length of the hypotenuse.
 - a) $\frac{1}{3}$
 - b) $\frac{1}{2}$
 - c) $\frac{1}{4}$
 - d) 2
- 4) In $\triangle ABC$: if $AD = 9$ cm is a median and M is the point of concurrency, then $DM =$ cm.
 - a) 6
 - b) 3
 - c) 4.5
 - d) 4
- 5) In $\triangle ABC$ is the right-angled triangle at B $m(\angle A) = 30^\circ$ and $BC = 4$ cm then $AC =$ cm.
 - a) 4
 - b) 8
 - c) 2
 - d) 12

- 3 In the opposite figure:** $\triangle ABC$, $AC = 8$ cm, $m(\angle BAC) = 60^\circ$, $m(\angle ABC) = 90^\circ$, D is the midpoint of \overline{AC} .

Find: the perimeter of $\triangle ABD$

4 Complete:

- a) The base angles of the isosceles triangle are
- b) In the opposite figure: ABC is a triangle in which $AB = AC$, $\overline{XY} \parallel \overline{BC}$
Prove that $\triangle AXY$ is an isosceles triangle.



5 Complete:

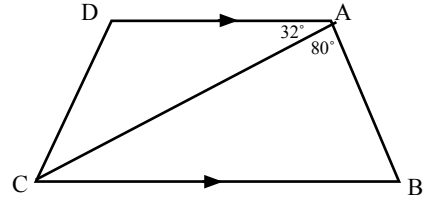
a) In a triangle, if two sides have unequal lengths,

b) In the opposite figure $\overline{AD} \parallel \overline{BC}$,

$$m(\angle BAC) = 80^\circ, \quad m(\angle CAD) = 32^\circ$$

Prove that:

$$BC > AB$$



Gharbia

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Samanoud Educational Directorate

Answer the following questions:

1 Choose the correct answer from the given ones:

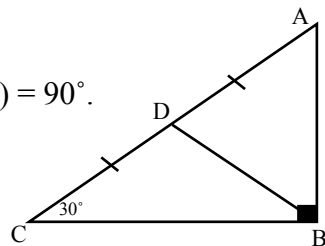
- 1) Number of axes of symmetry of the equilateral triangle =
a) 1 b) 2 c) 3 d) 4
- 2) The base angles of the isosceles triangle are
a) congruent b) alternate c) corresponding d) supplementary
- 3) The length of the side opposite to the angle whose measure is 30° in the right-angled triangle = the length of the hypotenuse .
a) quarter b) half c) third d) twice
- 4) In the triangle ABC, if $m(\angle B) = 90^\circ$, then the greatest side is
a) \overline{AB} b) \overline{BC} c) \overline{AC} d) \overline{XY}
- 5) In the triangle ABC, if $BC = 9 \text{ cm} = 7 \text{ cm}$, then
 $m(\angle C)$ $m(\angle A)$
a) = b) \geq c) $>$ d) $<$

2 Complete each of the following:

- a) The medians of any triangle intersect at
- b) Any point on the axis of the line segment is from its terminals.
- c) The length of the median from the vertex of the right angle in the right-angled triangle equals
- d) In any triangle, if two angles are unequal in measure, then the greater angle is opposite to
- e) The measure of the exterior angle of the equilateral triangle =°

3 In the opposite figure:

$AC = 8$ cm, D is mid of \overline{AC} , $m(\angle C) = 30^\circ$ and $m(\angle B) = 90^\circ$.
Find the perimeter of the triangle ABD.



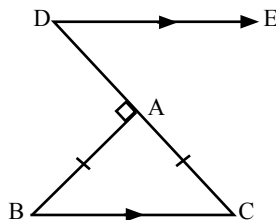
4 a) ABC is a triangle in which $m(\angle A) = 50^\circ$ and $m(\angle C) = 80^\circ$.

Prove that the triangle ABC is an isosceles triangle.

b) In the opposite figure:

$\overline{BA} \perp \overline{CD}$, $\overline{BC} \parallel \overline{DE}$

$AB = AC$. Find $m(\angle CDE)$.

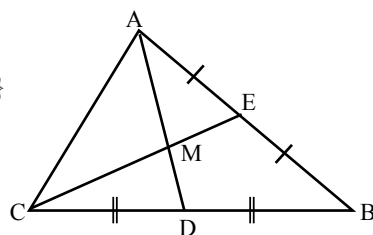


5 a) In the opposite figure:

E is mid of \overline{AB} . D is mid of \overline{BC} , $\overline{AD} \cap \overline{CE} = \{M\}$

$MC = 5$ cm. and $MD = 2$ cm.

Find the length of each of \overline{AD} and \overline{ME}

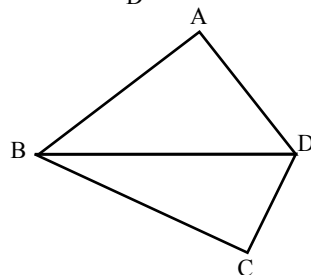


b) In the opposite figure:

$AB = 7$ cm , $BC = 8$ cm.,

$AD = 5$ cm. and $DC = 3$ cm.

Prove that: $m(\angle ADC) > m(\angle ABC)$



1 Complete:

1) The bisector of vertex angle of isosceles triangle is

2) In $\triangle XYZ$: if $m(\angle X) = 75^\circ$, $m(\angle y) = 25^\circ$ then the longest side in length is

3) If the point $D \in$ the axis of symmetry of \overline{BC} .

Then $DB =$

4) If ABC is a right angled triangle at B, and $AB = \frac{1}{2} AC$

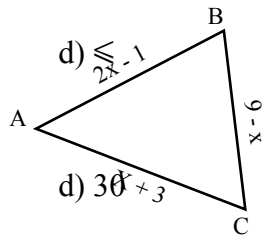
Then $m(\angle A) =$

5) XYZ is a triangle, if $XY = 3$ cm, $YZ = 5$ cm

then $XZ \in].....,.....[$

2 Choose:

- The number of axes of symmetry in the equilateral triangle =
a) 2 b) 1 c) 0 d) 3
- In $\triangle ABC$: If $AB = AC$, $m(\angle C) = 50^\circ$ then $m(\angle A) =$
a) 80° b) 40° c) 100° d) 50°
- The point of concurrence of the medians of the triangle divides each median in the ratio of from the vertex.
a) 1 : 3 b) 3 : 1 c) 1 : 2 d) 2 : 1
- In $\triangle ABC$: If $BC > AB$, Then $m(\angle A)$ $m(\angle C)$
a) = b) < c) >
- ABCD is a parallelogram, $AB = 3$ cm. $BC = 5$ cm,
Then its perimeter =cm
a) 8 b) 16 c) 15



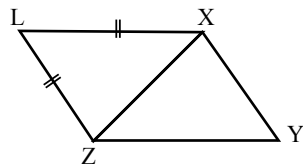
3 a) In the opposite figure:

ABC is a triangle, $m(\angle B) = m(\angle C)$
Find the perimeter of the triangle ABC.

b) In the opposite figure:

$LX = LZ$, $YZ > YX$

Prove that: $m(\angle YXL) > m(\angle YZL)$



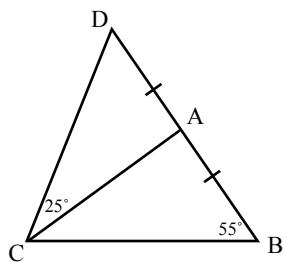
- ABC is a triangle in which $AB = \frac{1}{2} BC = 3.5$ cm, and $AC = 8$ cm, Order the measure of its angles ascendingly.

b) In the opposite figure:

$AB = AC$, $m(\angle ABC) = 55$

$m(\angle ACD) = 25$ and $D \in \overrightarrow{BA}$

Prove that: $AB > AD$



5 In the figure:

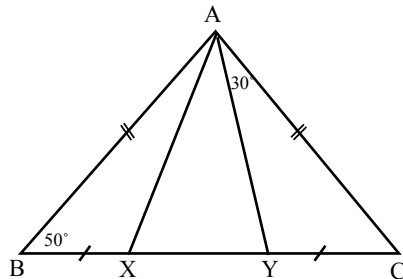
ABC is a triangle in which

$AB = AC$, $BX = CY$

If $m(\angle B) = 50^\circ$, $m(\angle CAY) = 30^\circ$

Prove that: 1) $\triangle AXY$ is isosceles \triangle

2) Find $m(\angle AXY)$



1 Complete:

a) The point of intersection of the medians in a triangle divides each median by the ratio from the base.

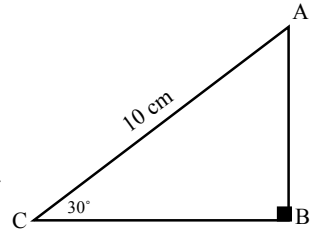
b) The bisector of the vertex angle of an isosceles triangle is to the base and

ΔABC , $m(\angle B) = 90^\circ$, $m(\angle C) = 30^\circ$

if $AC = 10$ cm .Then $AB = \dots\dots\dots$ cm

d) The longest side in the right-angled triangle is

e) The measure of the exterior angle of equilateral triangle =°



2 Choose the correct answer:

a) In a triangle ABC, if $AB = AC$ and $m(\angle A) = 40^\circ$

then $m(\angle C) = \dots\dots\dots$ (40° , 70° , 140° , 50°)

b) If the lengths of two sides of triangle is 7, 12 cm,

then the third side is (7 , 5 , 4 , 3)

c) In ΔABC : If $m(\angle B) = 70^\circ$, $m(\angle A) = 50^\circ$ then $AB \dots\dots\dots BC$

($>$, $<$, $=$, \equiv)

d) In the ΔXYZ , if $XY > ZX$, then $m(\angle Y) \dots\dots\dots m(\angle Z)$

($>$, $<$, $=$, \equiv)

e) The number of axes of symmetry of isosceles triangle is°

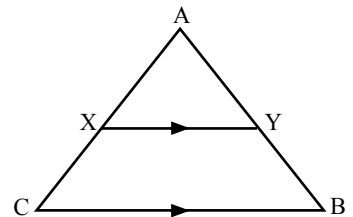
(1 , 0 , 3 , 4)

3 In the opposite figure:

ABC is a triangle in which $AB = AC$

$\overline{XY} \parallel \overline{BC}$, prove that

ΔAXY is an isosceles triangle



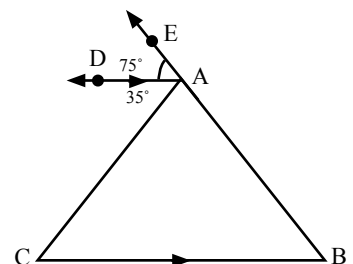
4 a) In the opposite figure:

ABC is a triangle, $E \in \overrightarrow{BA}$

$\overline{AD} \parallel \overline{BC}$, $m(\angle CAD) = 35^\circ$

$m(\angle DAE) = 75^\circ$

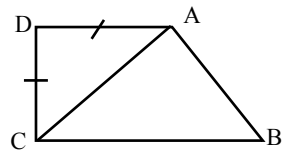
Prove that $AC > AB$



b) In the opposite figure:

ABCD is a quadrilateral
in which $AD = DC$, $BC > AB$

$$m(\angle BAD) > m(\angle CAD)$$



5 a) In the opposite figure:

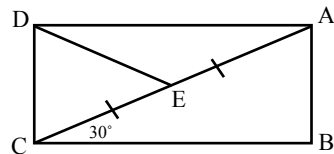
$$m(\angle ABC) = m(\angle ADC) = 90^\circ$$

$$m(\angle ACB) = 30^\circ \text{ and}$$

\overline{DE} is a median of $\triangle ADC$,

$$\overline{AB} = 3 \text{ cm}$$

Find, the length of \overline{DE}

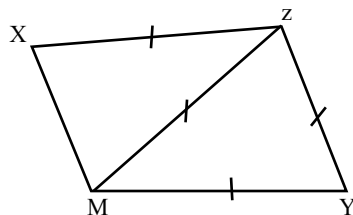


b) In the opposite figure:

$$ZY = YM = MZ = ZX$$

$$m(\angle ZMX) = 50^\circ$$

Find $m(\angle YZX)$



Domiette

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Damietta Educational Directorate

1 Choose the correct answer:

a) The number of axis of symmetry of isosceles triangle

(0, 1, 2, 3)

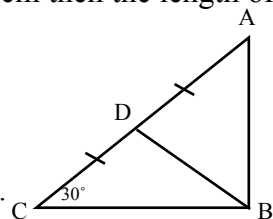
b) If the length of two sides of an isosceles triangle 3cm, 7 cm then the length of the third side = cm.

(3, 4, 7, 10)

c) In the opposite figure ABC is right angled triangle at B,

\overline{BD} is median $m(\angle C) = 30^\circ$ then $\triangle ABD$ is triangle.

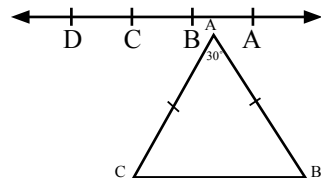
(equilateral, isosceles, scalene, right angled)



d) In the opposite figure

$C, D \in \overleftrightarrow{AB}$ if $AB > CD$ then AC BD .

($>$, $<$, $=$, \equiv)



e) In the opposite figure $\triangle ABC$, $AB = AC$

$m(\angle A) = 50^\circ$ then $m(\angle B)$ $^\circ$.

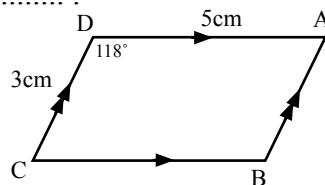
(50° , 130° , 65° , 60°)

2 Complete to form a correct statement:

- The measure of an exterior angle of an equilateral triangle =
- The point of median of triangle divides each median in ratio from base.
- Triangle A B C in which A B = 3cm, B C = 5 cm then A C ∈].....‘.....[.
- In a triangle the smallest angle in measure opposite
- If the measurement of an angle in the isosceles triangle is 100° then the measurement of an angle of other two angles =

3 In the opposite figure A B C D is parallelogram find in proof.

- $m(\angle A)$
- Perimeter of the A B C D.



4 a) ABC is a triangle in which $m(\angle A) = 40^\circ$, $m(\angle B) = 75^\circ$ order the lengths of sides of $\triangle ABC$ in ascending order.:

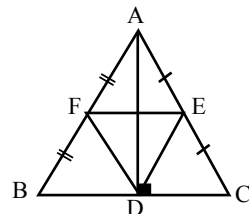
b) In the opposite figure:

ABC is triangle in which AB = 16cm,

AC = 18cm, BC = 20cm,

E is midpoint \overline{AC} , F is midpoint \overline{AB}

and $\overline{AD} \perp \overline{BC}$ find the perimeter of $\triangle DEF$.



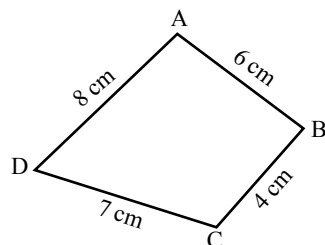
5 a) In the opposite figure:

ABCD is quadrilateral in which

AB = 6cm, BC = 4 cm, CD = 7cm

, DA = 8 cm prove that

$m(\angle BCD) > m(\angle BAD)$



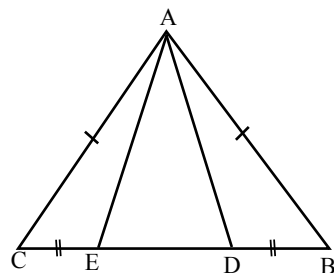
b) In the opposite figure:

ABC is an isosceles triangle in which BD = EC

AB = AC, D ∈ \overline{BC} , E ∈ \overline{BC} prove that

1) $\triangle ADE$ is isosceles,

2) $\angle ADE \cong \angle AED$

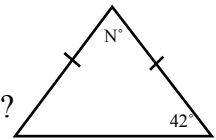


1 Choose the correct answer:

- The point of concurrence of the medians of the triangle divides each median in the ratio of from its base.
 - 2 : 1
 - 1 : 2
 - 2 : 3
 - 3 : 2

2) In the opposite figure $N^\circ = \dots\dots\dots$

- a) 42 b) 48 c) 138 d) 96



3) Which of the following groups are valid in drawing a triangle?

- a) 5 cm, 7 cm, 8 cm b) 4 cm, 9 cm, 3 cm
c) 10 cm, 6 cm, 4cm d) 8 cm, 3 cm, 4 cm

4) The length of the side opposite to the angle of measure $\dots\dots\dots^\circ$ in the right-angled triangle equals half the length of the hypotenuse.

- a) 30 b) 40 c) 60 d) 45

5) If the triangle is equilateral, then it is equiangular where each angle of measure = $\dots\dots\dots$

- a) 30 b) 45 c) 60 d) 90

2 Complete:

- 1) In the right-angled triangle, the $\dots\dots\dots$ is the longest side.
- 2) The medians of a triangle intersect in $\dots\dots\dots$.
- 3) If: $x > y$, z is a positive number then: $xz > \dots\dots\dots$
- 4) The interval which the third side of a triangle belongs to if the lengths of the other two sides were 6 cm, 9 cm is $\dots\dots\dots$.
- 5) The number of symmetrical axes in the equilateral triangle is $\dots\dots\dots$.

3 A) In the opposite figure:

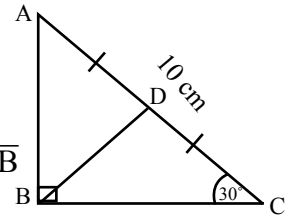
ABC is a right-angled triangle is B,

D is a midpoint of \overline{AC} , $m(\angle C) = 30^\circ$, $AC = 10$ cm

Find: 1) the length of \overline{BD}

2) the length of \overline{AB}

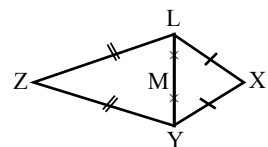
3) the perimeter of $\triangle ABD$



b) In the opposite figure:

$XY = XL$, $ZY = ZL$, $LM = YM$

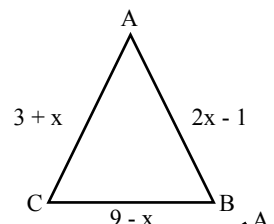
Prove that X, M and Z are on the same straight line



4 A) In the opposite figure:

ABC is a triangle which $m(\angle B) = m(\angle C)$

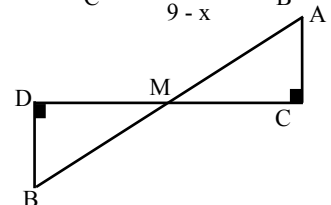
Find: the perimeter of the triangle.



b) In the opposite figure:

$\overline{AB} \cap \overline{CD} = \{M\}$, $\overline{AC} \perp \overline{CD}$, $\overline{BD} \perp \overline{CD}$

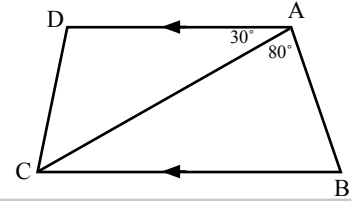
Prove that: $AB > CD$



5 In the opposite figure:

$\overrightarrow{AD} \parallel \overrightarrow{BC}$, $m(\angle BAC) = 80^\circ$, $m(\angle DAC) = 30^\circ$.

Prove that: $BC > AB$



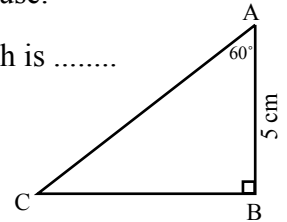
Ismailia

18

Directorate of Education - Elmanar Language School

1 Complete:

- a) The base angles of an isosceles triangle are
- 2) The number of the axes of symmetry in an equilateral triangle is
- 3) In the right-angled triangle the length of the median from the vertex of the right angle equals the length of the hypotenuse.
- 4) In $\triangle ABC$, if $m(\angle A) = 100^\circ$ then the greatest side length is
- 5) By using the opposite figure $AC = \dots\dots\dots\text{cm}$



2 Choose the correct answer:

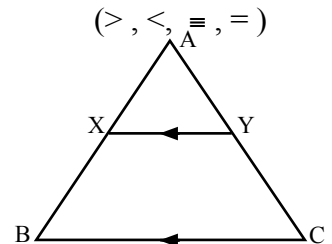
- 1) The intersection point of the medians of a triangle divides each of them at the ratio : from the base. $(1 : 2, 2 : 1, 1 : 4, 1 : 3)$
- 2) In The isosceles triangle if the measure of one of the two base angles = 50° then the measure of the vertex angle = $(50^\circ, 100^\circ, 80^\circ, 130^\circ)$
- 3) The length of two sides of an isosceles triangle are 4 cm, 9 cm then the length of the third side =cm $(4, 8, 7, 9)$
- 4) The measure of the exterior angle of an equilateral triangle = $(60^\circ, 80^\circ, 120^\circ, 130^\circ)$
- 5) ABC is a triangle in which $m(\angle B) = 70^\circ$, $m(\angle C) = 50^\circ$ then $AC \dots\dots\dots AB$. $(>, <, \equiv, =)$

3 In the opposite figure:

ABC is a triangle where

$AB > AC$, $\overline{XY} \parallel \overline{BC}$

Prove that: $m(\angle AYX) > m(\angle AXY)$



4 a) In the opposite figure:

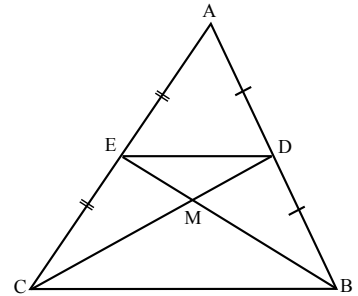
If D is the midpoint of \overline{AB} .

E is the midpoint of \overline{AC}

and $\overline{BE} \cap \overline{DC} = \{M\}$

If $DE = 4$ cm, $DM = 3$ cm and $ME = 2$ cm

Find the perimeter of $\triangle BMC$.

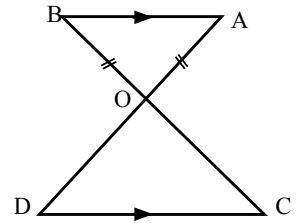


b) In the opposite figure:

$\overline{AB} \parallel \overline{DC}$, $\overline{AD} \cap \overline{BC} = \{O\}$

and $OA = OB$

Prove that: $\triangle ODC$ is an isosceles triangle.



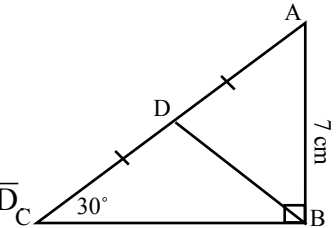
5 a) In the opposite figure:

ABC is a right angled triangle at B.

D is a midpoint of \overline{AC}

$m(\angle C) = 30^\circ$, $AB = 7$ cm

Find with proof: 1) length of \overline{AC} . 2) length of \overline{BD}



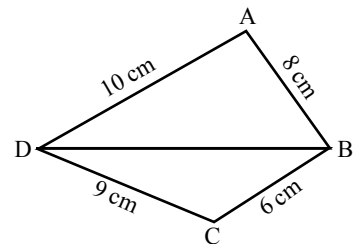
b) In the opposite figure:

ABCD is a quadrilateral in which

$AB = 8$ cm, $BC = 6$ cm

$CD = 9$ cm and $DA = 10$ cm

Prove that: $m(\angle ABC) > m(\angle ADC)$.



1 Complete:

1) $\triangle ABC$ in which $AB = 3$ cm, $BC = 5$ cm, then $AC \in].....,[$

2) The two base angles of the isosceles triangle are

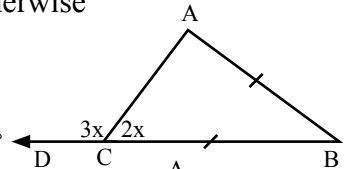
3) The side opposite to the angle of measure 30° in the right angled triangle equals the hypotenuse.

4) The bisector of the vertex angle in an isosceles triangle of

5) If the point A lies on the axis of symmetry of \overline{xy} , then :

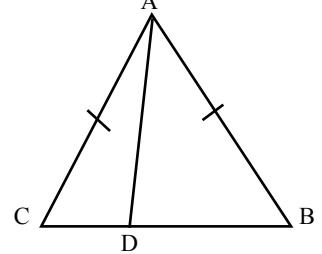
2 Choose the correct answer:

- 1) In $\triangle ABC$, If $BC > AB$, then $m(\angle A)$ $m(\angle C)$
 a) $>$ b) $<$ c) $=$ d) \geq
- 2) The medians of the triangle intersect at one point ,this point divides each in the ratio from the base.
 a) $2 : 1$ b) $1 : 2$ c) $3 : 4$ d) $1 : 1$
- 3) In isosceles triangle if one of its angles is 60° , then it has axes of symmetry.
 a) 1 b) 2 c) 3 d) an infinite
- 4) In $\triangle ABC$, then $AB + AC - BC >$
 a) 2 b) 1 c) zero d) otherwise
- 5) In the opposite figure:
 If $D \in \overrightarrow{BC}$, $\overline{AB} = \overline{AC}$, then $m(\angle B) = \dots\dots\dots^\circ$
 a) 36° b) 72° c) 180° d) 50°



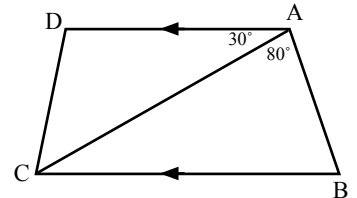
3 In the opposite figure:

ABC is isosceles triangle, $AB = AC$, $D \in \overline{BC}$
 Then prove that: $AB > AD$



4 a) In the opposite figure:

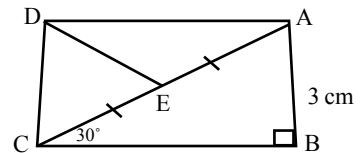
$\overline{AD} \parallel \overline{BC}$, $m(\angle DAC) = 30^\circ$, $m(\angle BAC) = 80^\circ$
 Then prove that: $BC > AB$



b) In the opposite figure:

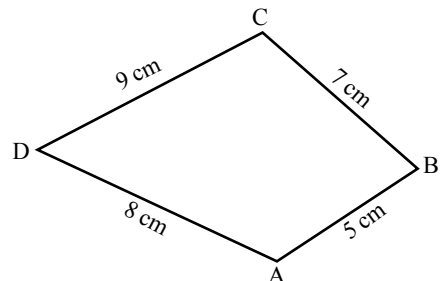
Complete:

- 1) $AC = \dots\dots\dots$ cm
- 2) $DE = \dots\dots\dots$ cm



5 a) In the opposite figure:

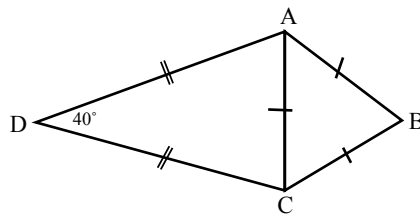
$AB = 5$ cm, $BC = 7$ cm, $CD = 9$ cm
 And $AD = 8$ cm, then
 Prove that: $m(\angle BAD) > m(\angle BCD)$



b) In the opposite figure:

$$AB = BC = AC, m(\angle D) = 40^\circ$$

And $AD = DC$, then find $m(\angle BCD)$



Fayoum

20

Fayoum East Directorate - Islamic Language School - Nafessa Elhosray

1 Choose the correct answer:

- 1) The numbers 7 , 3 and can be lengths of sides of an isosceles triangle.
a) 3 b) 7 c) 8 d) 4
- 2) The number of axes of symmetry of the equilateral triangle is
a) 1 b) 2 c) 3 d) zero
- 3) In $\triangle ABC$: if $m(\angle A) = 70^\circ$, $m(\angle B) = 50^\circ$, then AB BC .
a) $>$ b) $<$ c) \leq d) $=$
- 4) In $\triangle XYZ$: if $XY = ZY$ $m(\angle Y) = 80^\circ$, then $m(\angle X) =$
a) 80° b) 50° c) 100° d) 40°
- 5) If the length of median drawn from a vertex of triangle equals half the length of the opposite side to this vertex then the vertex angle is
a) acute b) obtuse c) right d) reflex

2 Complete:

- 1) The longest side in the right-angled triangle is
- 2) The bisector of the vertex angle of the isosceles triangle and
- 3) In $\triangle ABC$: if $AB > AC$, then $m(\angle B)$ $m(\angle C)$.
- 4) In the right-angled triangle the length of the side opposite to angle with measure 30° equals the length of the hypotenuse.
- 5) The point of intersection of the medians of a triangle divides each median in the ratio from the vertex.

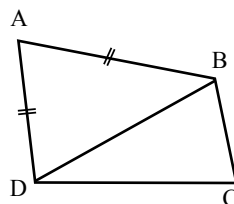
- 3 a)** Draw the line segment \overline{AB} with length 7cm. Using a compass and the ruler to draw the axis of symmetry of \overline{AB} . "Don't remove the arcs"

b) In the opposite figure:

ABCD is a quadrilateral in which

$$AB = AD, DC > BC$$

Prove that: $m(\angle ABC) > m(\angle ADC)$

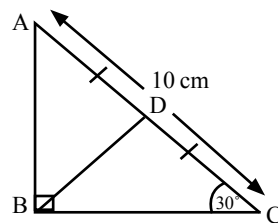


4 a) In the opposite figure:

ABC is a right-angled triangle at B, $m(\angle C) = 30^\circ$

D is a midpoint of \overline{AC} , $AC = 10$ cm.

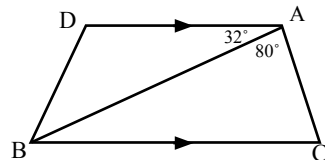
Find the length of \overline{AB} , \overline{BD}



b) In the opposite figure:

$\overline{AD} \parallel \overline{BC}$, $m(\angle BAC) = 80^\circ$, $m(\angle DAC) = 32^\circ$

Prove that: $BC > AB$

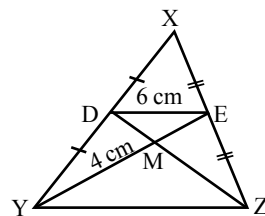


5 a) In the opposite figure:

D is the midpoint of \overline{XY} , E is the midpoint of \overline{XZ} ,

$\overline{YE} \cap \overline{XD} = \{M\}$, $YE = 9$ cm, $DM = 4$ cm., $DE = 6$ cm.

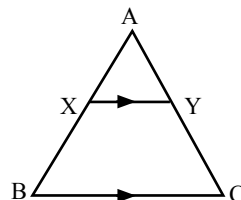
Find the perimeter of $\triangle YMZ$.



b) In the opposite figure:

$\overline{BC} \parallel \overline{XY}$, $AB = AC$

Prove that: $\triangle AXY$ is an isosceles triangle.



1 Choose the correct answer:

1) If the lengths of two sides in a triangle are 3 cm, 7 cm, then the length of the third side may be

- a) 3 b) 4 c) 6 d) 10

2) The triangle ABC is obtuse-angled triangle at B, then the longest side is

- a) AB b) BC c) AC d) AD

3) In the isosceles triangle if one of its base angles is of measure 40° , then its vertex angles is of measure

- a) 40° b) 80° c) 100° d) 60°

4) The measure of exterior angle in an equilateral triangle

- a) 60° b) 70° c) 80° d) 120°

5) In a triangle ABC: $m(\angle B) = 75^\circ$, $m(\angle C) = 50^\circ$, then BC AB

a) <

b) >

c) =

d) \equiv

2 Complete the following:

1) The points of concurrence of the medians of the triangle divides each median in the ratio: from the base.

2) Any point at the axis of the line of symmetry is at two equal distances from

3) The length of side opposite to the angle whose measure = 30° in the right-angled triangle =

4) In the right-angled triangle the length of the median from the vertex of the right angle equal the length of the hypotenuse.

5) In triangle ABC, if $m(\angle A) = 70^\circ$, $m(\angle B) = 30^\circ$, then the longest side in length is

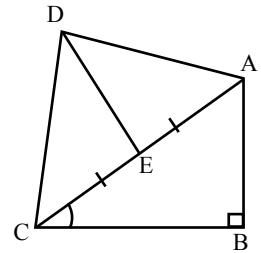
3 a) In the opposite figure:

ABCD is a quadrilateral,

$m(\angle B) = m(\angle D) = 90^\circ$, $m(\angle ACB) = 30^\circ$,

E is the midpoint of \overline{AC}

Prove that: $AB = DE$

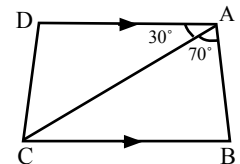


b) In the opposite figure:

$m(\angle BAC) = 70^\circ$ and $m(\angle DAC) = 30^\circ$

$\overline{AD} \parallel \overline{BC}$

Prove that: $AC > CB$

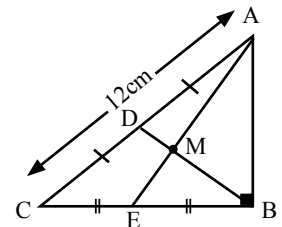


4 a) In the opposite figure:

ABC is a right-angled triangle at B,

\overline{AE} and \overline{BD} are two medians of the triangle intersecting at M if $AC = 12\text{cm}$

Calculate the length of each \overline{BD} and \overline{MD}



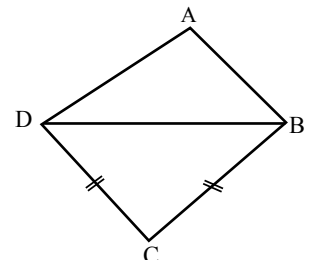
b) In the opposite figure:

ABCD is a quadrilateral in which:

$AD > AB$ and $BC = CD$

Prove that:

$m(\angle ABC) > m(\angle ADC)$

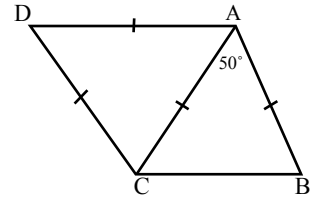


5 a) In the opposite figure:

$$AB = AC = CD = DA$$

$$, m(\angle BAC) = 50^\circ$$

$$\text{Find: } m(\angle BCD)$$



b) $\triangle ABC$ which: $m(\angle A) = (5x + 2)^\circ$, $m(\angle B) = (6x - 10)^\circ$

$$, m(\angle C) = (x + 20)^\circ$$

Arrange the lengths of the side: of the triangle in an ascending order.

Minia

22

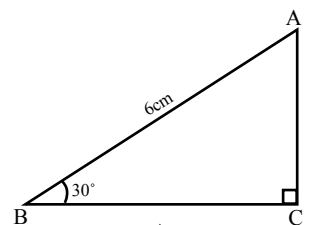
Minia Educational Directorate

1 Complete:

- 1) The number of symmetrical axes in the equilateral triangle is
- 2) The base angles in an isosceles triangle are
- 3) If the length of two sides in an isosceles triangle were 3 cm, 7 cm then the length of the third side = cm.
- 4) Triangle ABC in which $AB = 3$ cm, $BC = 5$ cm, then $AC \in].....,.....[$
- 5) The longest side length in the right angled triangle is

2 Choose:

- 1) In triangle ABC, if $m\angle A = 70^\circ$, $m\angle B = 30^\circ$, then the longest side in the length is is
(\overline{AB} , \overline{BC} , \overline{CA} , not given)
- 2) The intersecting point of medians of a triangle divides each other from the direction of the base in a ratio
(1 : 2, 2 : 1, 1 : 3, 2 : 3)
- 3) In the opposite figure: $AC =$
(6 cm, 3 cm, 12 cm, 2 cm)



- 4) In the opposite figure:

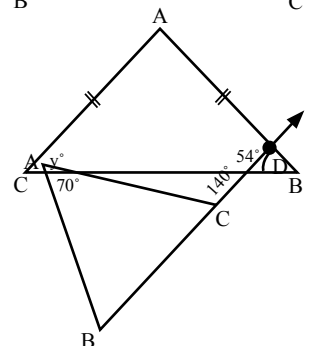
$$Y^\circ = \dots\dots\dots$$

$$(54^\circ, 126^\circ, 63^\circ, 180^\circ)$$

- 5) In the opposite figure:

$$AC = \dots\dots\dots$$

$$(AB, CB, BD, CD) =$$



- 3 Line segment \overline{AB} which its length 6 cm, draw the straight line (L) the symmetry in the figure opposite:

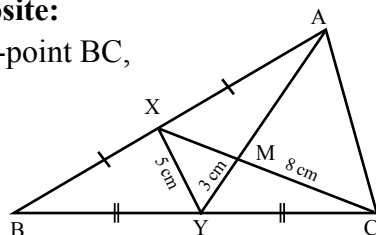
ABC is a triangle, X in a mid-point AB, Y in a mid-point BC,

$$XY = 5 \text{ cm} = \overline{XY} \cap \overline{AY} = \{M\}$$

Where $CM = 8 \text{ cm}$, $YM = 3 \text{ cm}$

Find: (1) The perimeter of triangle MXY

(2) The perimeter of triangle MAC



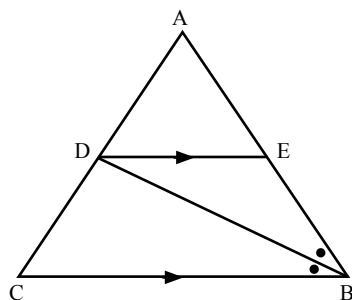
- 4 a) The bisector of the vertex angle in the isosceles triangle bisects the base and is

b) In the opposite figure:

\overline{BD} bisects $\angle ABC$ and intersects \overline{AC} at D,

$\overline{DE} \parallel \overline{BC}$ wherer $E \in \overline{AB}$

Prove: the triangle EBD is an isosceles triangle

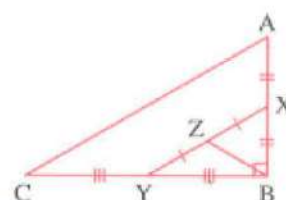


- 5 a) The length of median draw from the vertex of the right angle in a triangle is equal
- b) Triangle ABC in which $AB = 2.7 \text{ cm}$, $BC = 8.5 \text{ cm}$, $AC = 6 \text{ cm}$, Order the measure of angles of the triangle ascendingly.

Exam (1) geometry:

Complete the following:

- 1 The base angles of the isosceles triangle are
- 2 In $\triangle ABC$, if $\overline{AB} \perp \overline{BC}$ and $AB = BC$, then $m(\angle A) = \dots\dots\dots^\circ$
- 3 In $\triangle ABC$, if $AB > AC$, then $m(\angle C) \dots\dots\dots m(\angle B)$
- 4 The triangle whose side lengths are $(2X - 1)$ cm. , $(X + 3)$ cm. , 7 cm. becomes an equilateral triangle when $X = \dots\dots\dots$ cm.
- 5 In the opposite figure :
 $AC = \dots\dots\dots BZ$



Choose the correct answer:

- 1 In $\triangle ABC$, if $AC = 4$ cm. , $BC = 3$ cm. , then $m(\angle B) \dots\dots\dots m(\angle A)$
 (a) $>$ (b) $<$ (c) $=$ (d) \leq
- 2 The length of the side opposite to the angle of measure 30° in the right-angled triangle equals the length of the hypotenuse.
 (a) half (b) twice (c) third (d) quarter
- 3 In $\triangle ABC$, if $m(\angle A) = 100^\circ$ and $AB = AC$, then $m(\angle ABC) = \dots\dots\dots$
 (a) 80° (b) 60° (c) 40° (d) 30°
- 4 The point of intersection of the medians of the triangle divides each of them in the ratio from the base.
 (a) $1 : 3$ (b) $3 : 1$ (c) $1 : 2$ (d) $2 : 1$
- 5 If $\triangle ABD$ is obtuse-angled at B and C is the midpoint of \overline{BD} , then the longest side is
 (a) \overline{AB} (b) \overline{AC} (c) \overline{AD} (d) \overline{BD}
- 6 The triangle whose side lengths are 2 cm. , $(X + 3)$ cm. and 5 cm. , becomes an isosceles triangle when $X = \dots\dots\dots$ cm.
 (a) 1 (b) 2 (c) 3 (d) 4

Question 3:

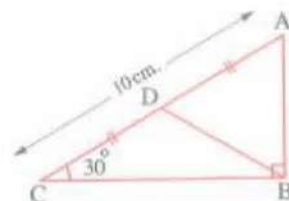
[a] In $\triangle ABC$, if $m(\angle A) = (6X)^\circ$, $m(\angle B) = (4X - 9)^\circ$ and $m(\angle C) = 5(X - 2)^\circ$, arrange the side lengths of $\triangle ABC$ ascendingly.

[b] In the opposite figure :

$m(\angle ABC) = 90^\circ$, $m(\angle C) = 30^\circ$

, $AD = DC$ and $AC = 10$ cm.

Find : The perimeter of $\triangle ABD$



Question 4:

[a] In the opposite figure :

If $\overline{AC} \cap \overline{BD} = \{M\}$

, $\overline{AD} \parallel \overline{BC}$ and $MB = MC$

, prove that :

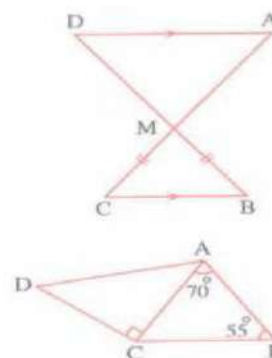
$\triangle MAD$ is isosceles.

[b] In the opposite figure :

$m(\angle BAC) = 70^\circ$, $m(\angle B) = 55^\circ$

and $m(\angle ACD) = 90^\circ$

Prove that : $AD > AB$



Question 5:

[a] In the opposite figure :

ABC is a triangle in which $AB = AC$

, \overline{AE} bisects $\angle BAC$

Prove that :

① $BE = \frac{1}{2} BC$

② $BD = CD$

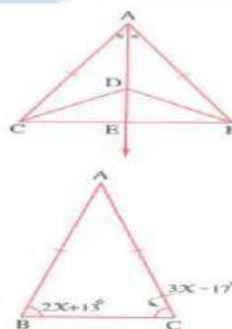
[b] In the opposite figure :

$AB = AC$, $m(\angle B) = 2X + 13^\circ$

, $m(\angle C) = 3X - 17^\circ$

Find :

The measures of the angles of $\triangle ABC$



Exam (2) geometry:

Complete the following:

- 1 The median of an isosceles triangle from the vertex angle bisects and is perpendicular to
 - 2 The measure of the exterior angle at any vertex of the equilateral triangle is°
 - 3 The base angles of the isosceles triangle are
 - 4 ABC is a triangle in which $AB = 4$ cm, $BC = 6$ cm, \therefore then $AC \in]$,[
 - 5 The longest side in the right-angled triangle is
-



Choose the correct answer:

- 1 An isosceles triangle has two sides of lengths 6 cm. and 12 cm. \therefore then the length of the third side equals cm.
 (a) 6 (b) 9 (c) 12 (d) 18
 - 2 In $\triangle XYZ$, if $m(\angle Y) = 115^\circ$, then the longest side is
 (a) \overline{XY} (b) \overline{YZ}
 (c) \overline{ZX} (d) the median of the triangle.
 - 3 The lengths 5 cm, 4 cm, and cm, are lengths of sides of a triangle.
 (a) 8 (b) 9 (c) 12 (d) 10
 - 4 The triangle having two angles of measures 74° and 53° is triangle.
 (a) an isosceles (b) an equilateral (c) a scalene (d) a right-angled
 - 5 The intersection point of the medians of a triangle divides each median by the ratio 1 : from the base.
 (a) 1 (b) 2 (c) 3 (d) 4
 - 6 If two sides of a triangle have unequal lengths, then the smaller side is opposite to the angle of the measure from that is opposite to the other side.
 (a) greater (b) smaller (c) equal (d) otherwise
-

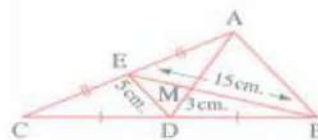
Question 3:

[a] In the opposite figure :

If E is the midpoint of \overline{AC} and D is the midpoint of \overline{BC}

, $ED = 5$ cm. , $MD = 3$ cm. and $BE = 15$ cm.

, **find :** The perimeter of $\triangle AMB$



[b] ABC is a triangle in which : $m(\angle B) = 40^\circ$, $m(\angle C) = 80^\circ$

Arrange its side lengths ascendingly.

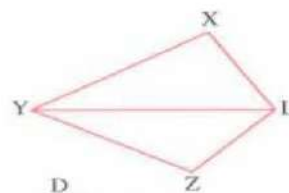
Question 4:

[a] In the opposite figure :

If $XY > XL$

, $YZ > ZL$

, **prove that :** $m(\angle XLZ) > m(\angle XYZ)$



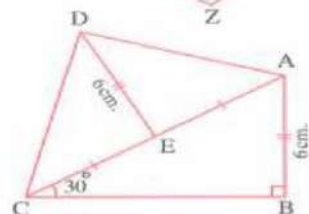
[b] In the opposite figure :

$m(\angle B) = 90^\circ$, $m(\angle ACB) = 30^\circ$

, E is the midpoint of \overline{AC} and $AB = DE = 6$ cm.

Find : 1 The length of \overline{AC}

2 $m(\angle ADC)$



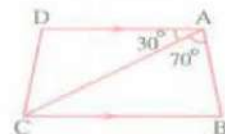
Question 5:

[a] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $m(\angle BAC) = 70^\circ$

, $m(\angle DAC) = 30^\circ$

Prove that : $AC > BC$



[b] In the opposite figure :

$AB = 4$ cm. , $BC = 6$ cm.

, $AC = 7$ cm.

Arrange the measures of the angles of the triangle ABC descendingly.



Exam (3) geometry:

Complete the following:

- 1 The length of the side which is opposite to the angle of measure 30° in the right-angled triangle equals the length of the hypotenuse.
- 2 In the right-angled triangle , the longest side is the
- 3 The straight line drawn from the vertex of the isosceles triangle , perpendicular to the base this vertex.
- 4 The measure of the exterior angle of the equilateral triangle equals $^\circ$
- 5 The number of axes of symmetry of the isosceles triangle is

Choose the correct answer:

- 1 In $\triangle ABC$, if $AB = AC$, $m(\angle B) = 40^\circ$, then $m(\angle A) = \dots\dots\dots$
 (a) 70° (b) 55° (c) 100° (d) 40°
- 2 The point of concurrence of the medians of the triangle divides each median at the ratio from the vertex.
 (a) 1 : 2 (b) 2 : 1 (c) 2 : 3 (d) 1 : 3
- 3 In $\triangle ABC$, if $AB = 7$ cm. , $BC = 10$ cm. , then the length of \overline{AC} must satisfy which of the following inequalities ?
 (a) $3 \leq AC \leq 17$ (b) $3 < AC < 17$ (c) $10 < AC < 20$ (d) $14 < AC < 20$
- 4 If $\triangle ABD$ is obtuse-angled at B and C is the midpoint of \overline{BD} , then the longest side in $\triangle ABD$ is
 (a) \overline{AB} (b) \overline{AC} (c) \overline{AD} (d) \overline{BD}
- 5 In $\triangle ABC$, if $m(\angle A) = 64^\circ$, $m(\angle B) = 35^\circ$, then the longest side of the triangle is
 (a) \overline{AB} (b) \overline{AC} (c) \overline{BC} (d) otherwise.

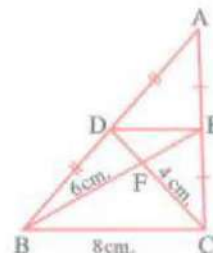
Question 3:

[a] XYZ is a triangle in which $m(\angle X) = 60^\circ$, $m(\angle Y) = 50^\circ$
Order the lengths of the sides of the triangle descendingly.

[b] In the opposite figure :

ABC is a triangle in which D , E are the midpoints of \overline{AB} , \overline{AC}
 , $FC = 4$ cm. , $FB = 6$ cm.
 , $BC = 8$ cm.

Find : The perimeter of $\triangle DFE$

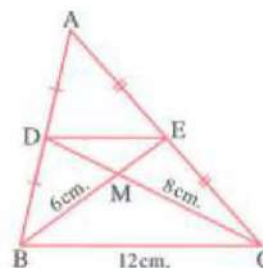


Question 4:

[a] In the opposite figure :

In $\triangle ABC$: \overline{BE} , \overline{CD} are two medians , $MB = 6$ cm.
 , $BC = 12$ cm. , $MC = 8$ cm.

Find : The perimeter of $\triangle MDE$



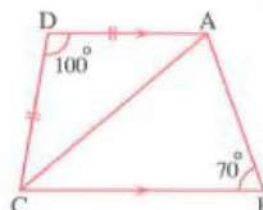
[b] In the opposite figure :

$\overline{AD} \parallel \overline{BC}$, $AD = DC$

, $m(\angle D) = 100^\circ$, $m(\angle B) = 70^\circ$

Prove that : 1 $AC > AB$

2 $\triangle ABC$ is isosceles.

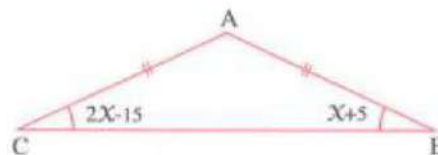


Question 5:

[a] In the opposite figure :

ABC is a triangle , $AB = AC$, $m(\angle B) = (x + 5)^\circ$
 , $m(\angle C) = (2x - 15)^\circ$

Find : $m(\angle A)$ (show all of your work)



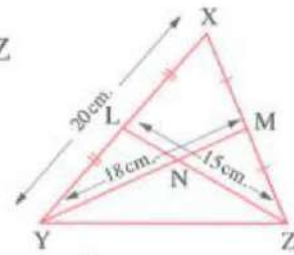
[b] In the opposite figure :

N is the point of concurrence of the medians of the triangle XYZ

, $LZ = 15$ cm. , $YM = 18$ cm.

, $XY = 20$ cm.

Find : The perimeter of the triangle NLY



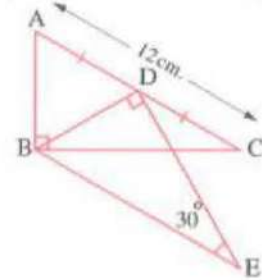
[c] In the opposite figure :

$m(\angle ABC) = m(\angle BDE) = 90^\circ$

, D is the midpoint of \overline{AC}

, $m(\angle E) = 30^\circ$, $AC = 12$ cm.

Find with proof : The length of \overline{BE}



Wish you all the best

Q1 : Choose the correct answer

1) If the lengths of two sides in an isosceles triangle are 8 cm and 4 cm , then the length of the third side is cm

(a. 3 , b. 4 , c. 8 , d. 12)

2) $\triangle XYZ$ in which $m(\angle Z) = 70^\circ$, $m(\angle Y) = 60^\circ$, then YZ XY

(a. $>$, b. $<$, c. $=$, d. Twice)

3) The sum of the measures of the accumulative angles at the point equals

(a. 60° , b. 90° , c. 180° , d. 360°)

4) $\triangle ABC$ is a right-angled triangle at B , $AC = 20$ cm and D is the midpoint of \overline{AC} then $BD =$ cm

(a. 10 , b. 8 , c. 6 , d. 5)

5) If $\triangle ABC \equiv \triangle XYZ$, then $AB =$

(a. XZ , b. XY , c. YZ , d. BC)

6) $\triangle ABC$, if $AB = 6$ cm and $BC = 9$ cm , then $AC \in$

(a. $]3, 15[$, b. $[3, 15]$, c. $]3, 15]$, d. $[3, 15[$)

Q2 : Complete each of the following

1) The bisector of the vertex angle of the isosceles triangle bisects the base and

2) The length of any side in a trianglethe sum of lengths of the two other sides.

3) The measure of each of two equal complementary angles equals

4) The number of axes of symmetry of the isosceles triangle is

5) If the measure of one angle of an isosceles triangle is 60° , then the triangle is

Q3 : a) Arrange the measures of the angles of $\triangle LMN$, If $LM = 3$ cm , $MN = 5$ cm and $LN = 7$ cm

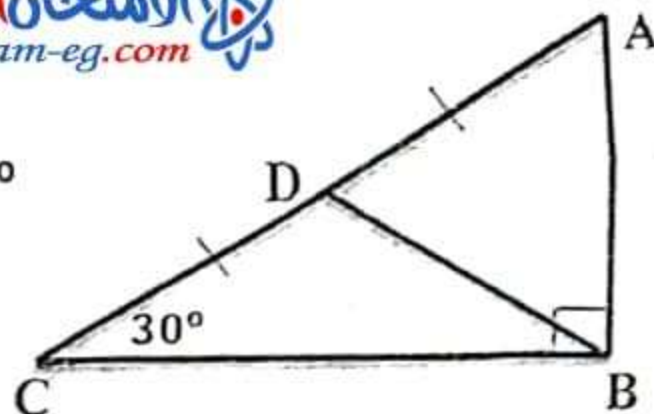
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b) In the opposite figure :

ABC is a right-angled triangle at B , $m(\angle C) = 30^\circ$

$AC = 8$ cm and D is the midpoint of \overline{AC} .

Find by proof: The perimeter of $\triangle ABD$

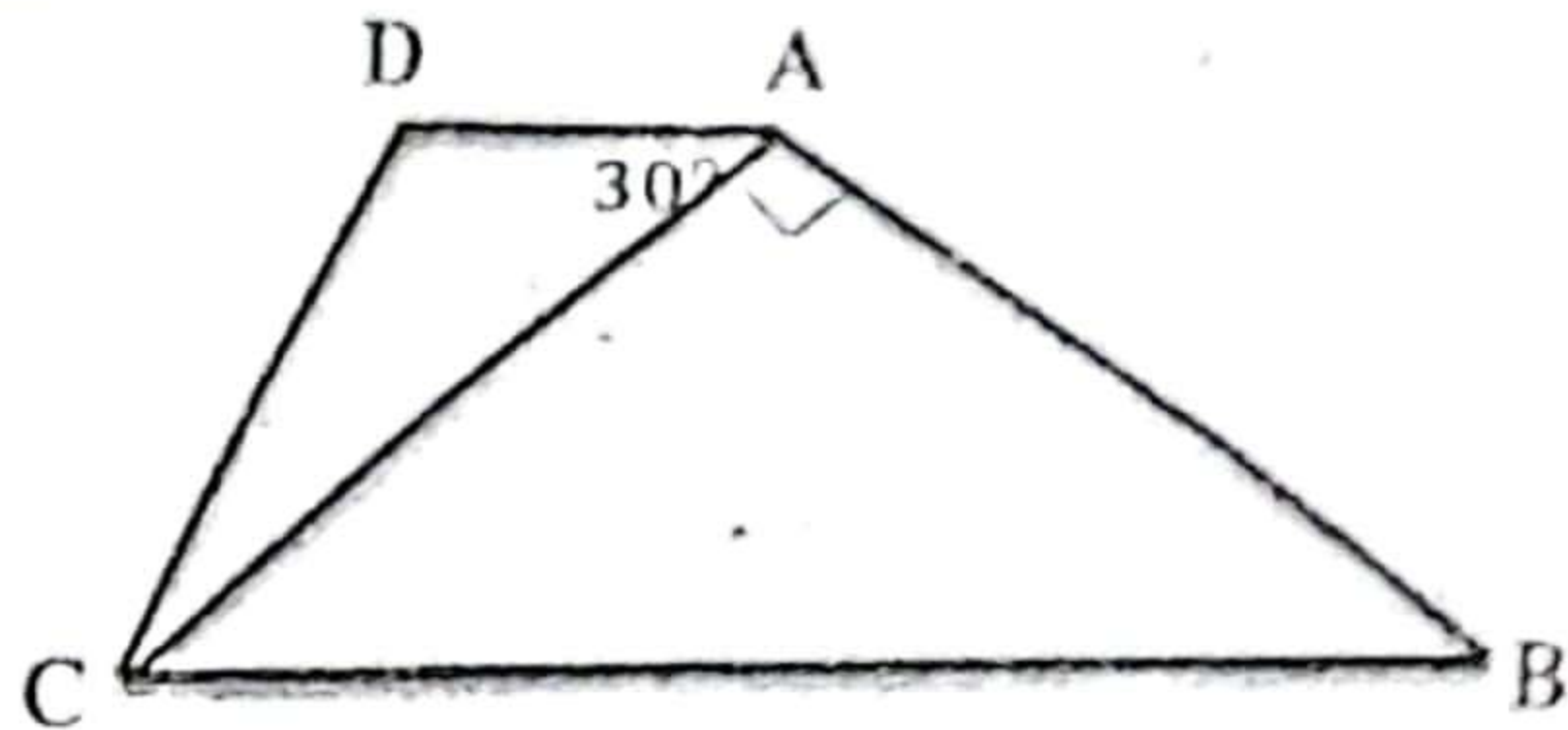


Q4 : a) In the opposite figure :

$$\overline{AD} \parallel \overline{BC}, m(\angle BAC) = 90^\circ$$

$$\text{and } m(\angle DAC) = 30^\circ$$

Prove that: $BC > AB$

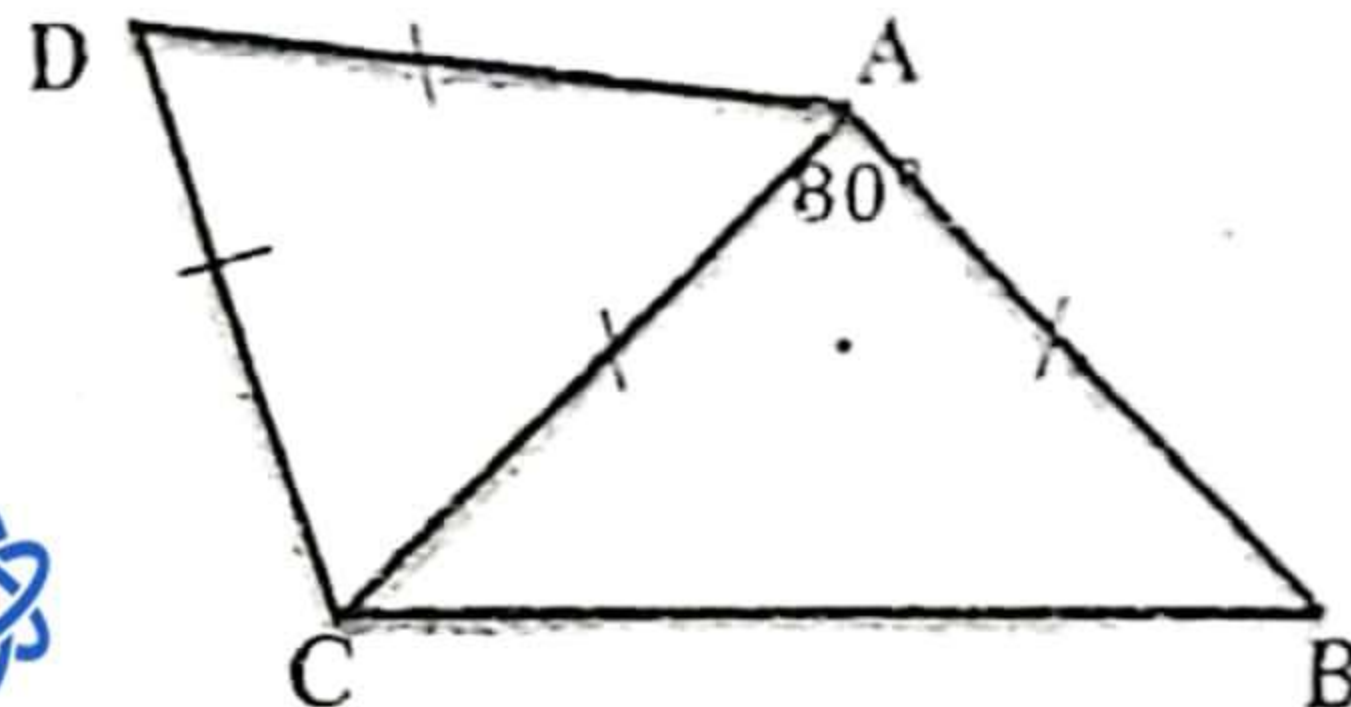


b) In the opposite figure :

$$AB = AC = AD = DC$$

$$\text{and } m(\angle BAC) = 80^\circ$$

Find by proof: $m(\angle BCD)$



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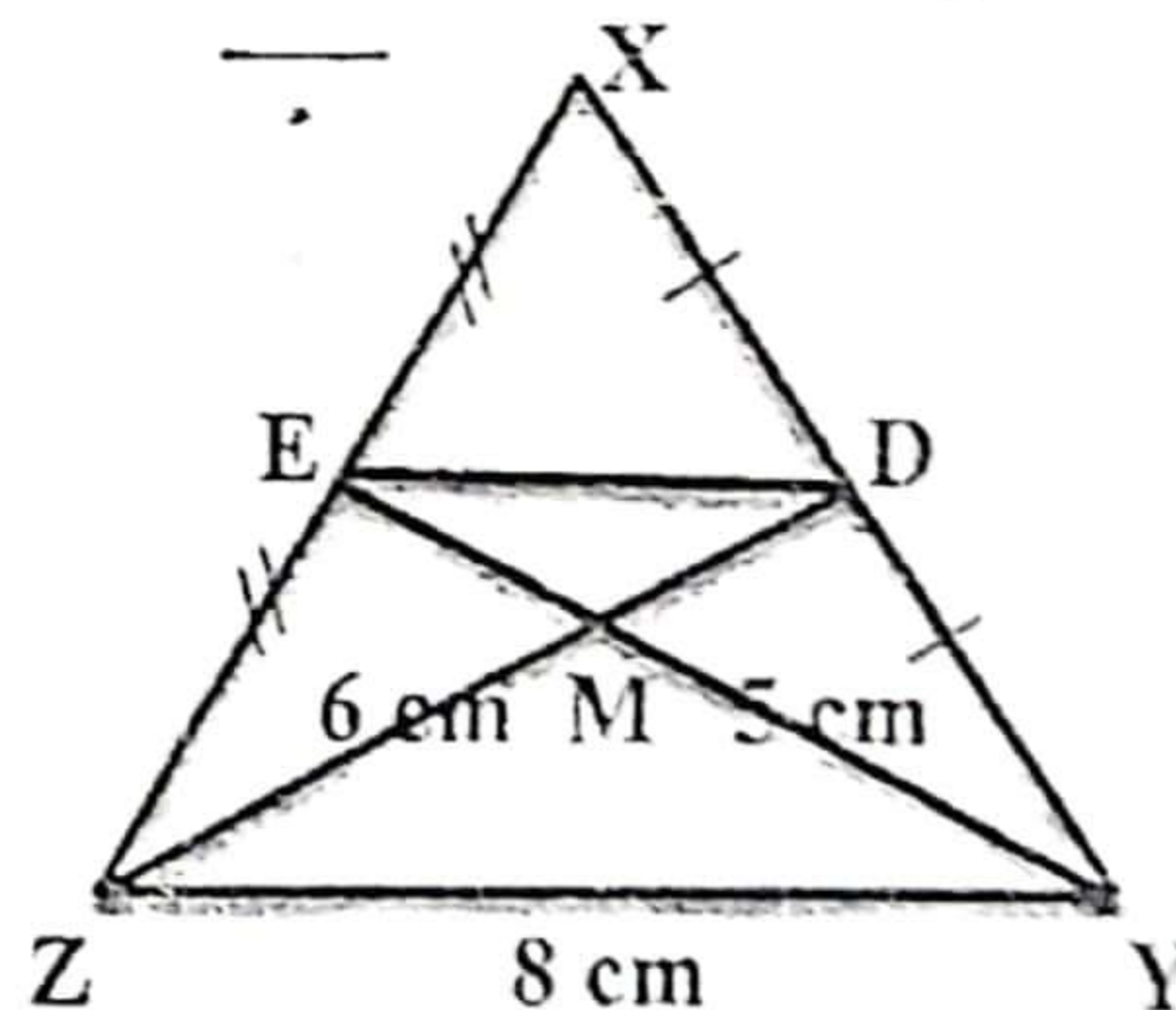
Q5 : a) In the opposite figure :

$\triangle XYZ$ in which, D is the midpoint of \overline{XY}

E is the midpoint of \overline{XZ} , $YZ = 8 \text{ cm}$

$$MZ = 6 \text{ cm}, MY = 5 \text{ cm}$$

Find by proof: The perimeter of $\triangle MED$



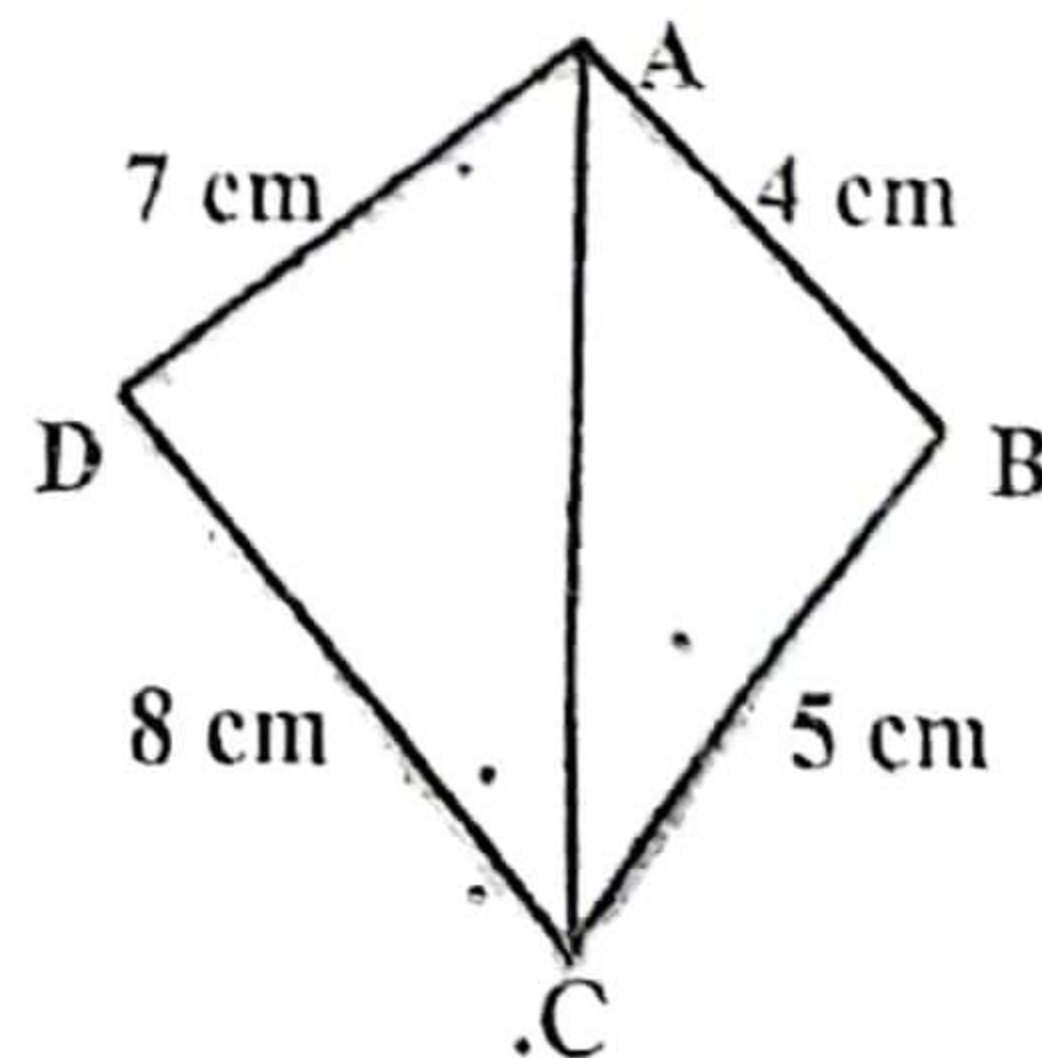
b) In the opposite figure :

ABCD is a quadrilateral

in which $AB = 4 \text{ cm}$, $BC = 5 \text{ cm}$

and $CD = 8 \text{ cm}$, $AD = 7 \text{ cm}$

Prove that: $m(\angle BAD) > m(\angle BCD)$



Giza governorate

6th of October directorate

Hesham Kamal Te'ma official language school

Mid-year Exam (2017/2018)

Subject: Geometry

Duration: two hours

Grade: prep. two

[1] Choose the correct answer :

1) The measure of an exterior angle of an equilateral triangle equals

- a) 60° b) 120° c) 90° d) 180°

2) In $\triangle ABC$, if $m(\angle B) + m(\angle C) = 90^\circ$, then $\angle A$ is angle.

- a) acute b) right c) obtuse d) parallel

3) If M is the point of intersection of the medians of $\triangle XYZ$ and D is the midpoint of \overline{XZ} , then $MD =$

- a) $3 \cdot XM$ b) $\frac{1}{3} \cdot YD$ c) $\frac{3}{2} \cdot YM$ d) $2 \cdot MY$

4) The triangle whose sides lengths are 2cm, $(x+3)$ cm and 5cm is an isosceles triangle if $x =$

- a) zero b) 1 c) 3 d) 2

5) If 6cm, 9cm are two sides lengths of a triangle, then the third side \in

- a) $[3, 15[$ b) $]3, 15]$ c) $[3, 15[$ d) $]3, 15]$

6) $\triangle XYZ$ is a triangle in which $YZ > XY$, then $m(\angle Z) \dots m(\angle X)$

- a) = b) < c) > d) twice

[2] Complete each of the following:

1) The straightline that is perpendicular to a line segment from its middle is called Median

2) In $\triangle ABC$, $m(\angle A) = 80^\circ$, $AB = AC$ so $m(\angle C) =$ 50°

3) The longest side in the right-angled triangle is the hypotenuse

4) In $\triangle LMN$, if $m(\angle M) = 90^\circ$, $m(\angle L) = 30^\circ$, then $LN =$ MN .

5) If $\overline{XZ} \equiv \overline{AB}$, then $(X) \dots = AC$

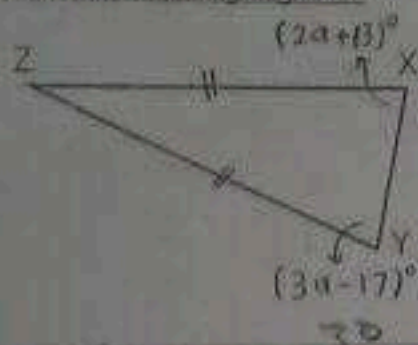
[3] a) $\triangle ABC$ is a right-angled triangle at B,

$m(\angle ACB) = 30^\circ$, $AB = 5$ cm, E is the midpoint of \overline{AC} .

$AB = \frac{1}{2} AC$



b) In the following figure:



Two sides are equal

$$ZX = ZY, m(\angle X) = (2a+13)^\circ$$

$$, m(\angle Y) = (3a-17)^\circ$$

Find $m(\angle X)$, $m(\angle Y)$ and $m(\angle Z)$.

$$(2a+13) = (3a-17)$$

$$5a = 30$$

[4] a) In the opposite figure:

ABC is a triangle in which $m(\angle B) = m(\angle C)$, $AB = 7\text{ cm}$.

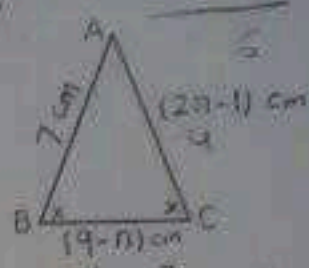
Find the perimeter of $\triangle ABC$.

$$2a+13 = 3a-17$$

$$19$$

$$6a$$

$$17$$



b) In the opposite figure:

M is a point inside $\triangle XYZ$, $\overline{YM} \cap \overline{XZ} = \{E\}$.

Prove that: $m(\angle XMY) > m(\angle XZY)$



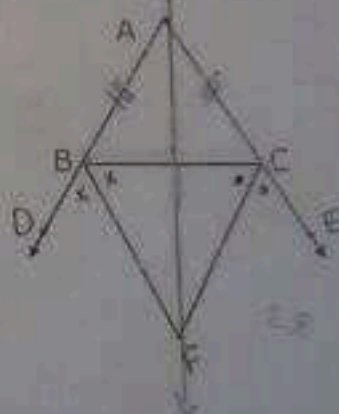
[5] a) In the opposite figure:

$AB = AC$, $D \in \overline{AB}$, $E \in \overline{AC}$, \overline{BF} bisects $(\angle DBC)$,

\overline{CF} bisects $(\angle BCE)$.

Prove that: (i) $\triangle BCF$ is an isosceles triangle.

(ii) \overline{AF} is the axis of symmetry of $\triangle BCF$.



b) In the opposite figure:

ABC is a triangle, $\overline{XY} \parallel \overline{BC}$

\overline{XY} bisects $(\angle BXA)$.

Prove that: $AC > AB$.



GOOD LUCK

1) Complete :

- The longest side in the right angled triangle is _____
- The axis of symmetry of a line segment is the straight line which _____. At its midpoint
- $\triangle ABC \cong \triangle XYZ$ then $AC =$ _____
- If C is the axis of symmetry of a line segment AB then _____ = AC
- The bisector of the vertex angle of the isosceles triangle _____ And _____
- The medians of the triangle are _____

2) Choose the correct answer:

- The number of axis of symmetry of the isosceles equal _____ (1, 2, 3, 0)
- The numbers 5, 8, _____ can be lengths of a Triangle (8, 9, 10, 12)
- The measure of the exterior angle of the equilateral = _____ (60, 40, 100, 120)
- XYZ is a \triangle in which $m(\angle Z) = 70$ and $m(\angle Y) = 60$ then $YZ \angle XY$ (> , < , = , Twice)
- If M is point of intersection of the medians of $\triangle ABC$ and D is midpoint of BC , then $AD =$ _____ (2AM, 3MD, AM, 4MD)

3) a) In the opposite figure;

$m(\angle B) = 90^\circ$, E is midpoint of DA
 F is midpoint of DC , $m(\angle ACB) = 30$
Prove that: $AB = EF$



b) In the opposite figure;

$AB < AD$, $BC < CD$
Prove that: $m(\angle ABC) > m(\angle ADC)$



4) a) In the opposite figure

$m(\angle A) = 50$, $AB = AC$,
and ABC is an equilateral \triangle
Find $m(\angle ABD)$



b) In the opposite figure

$AD \parallel BC$, $m(\angle DAC) = 50^\circ$, $(\angle BAC) = 70^\circ$
Prove that: $BC > AC$

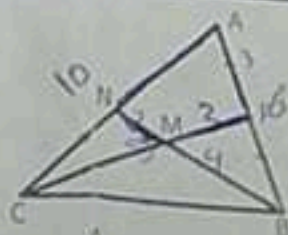


5) a) In the opposite figure

F and N are the midpoints of AB , AC respectively,

$BN \cap CF = \{M\}$, If $AB = 6$ cm, $AC = 10$ cm

$BM = 4$ cm, $CF = 9$ cm, Find the perimeter of the figure AFMN



b) In the opposite figure;

$AB > AC$, BD bisects $\angle B$ and CD bisects $\angle C$

Prove that: $BD > DC$

