Some Schools Examinations ? 2023

on Algebra and Statistics

1 Cairo Governorate — Heliopolis E.Zone Mathematics

Answer the following questions :

1 Complete :

1. $2\frac{1}{5} \times$ ..... $= 1$
2. $(2x - 3)(x + 5) = 2x^2 +$ ..... $- 15$
3. The mode for the set of values : 14 , 11 , 12 , 11 , 14 , 15 and 11 is .....
4. The algebraic term $5xy$ is of ..... degree.
5. If $a + 3b = 7$ and $c = 3$, then the numerical value of $a + 3(b + c)$ is .....
6. If the median of the values : 3 , 5 , $x + 2$ is 4 , then $x =$ .....

2 Choose the correct answer from those given :

1. $(x - 2)(x^2 + 2x + 4) =$ .....

   (a) $x^3 + 8$ (b) $x^3 - 8$ (c) $3x + 6$ (d) $x^3 + 6$

2. The median for the values : 4 , 8 , 3 , 5 and 7 is .....

   (a) 3 (b) 4 (c) 5 (d) 7

3. If $\frac{5}{x+2}$ is a rational number , then $x \neq$ .....

   (a) -2 (b) zero (c) 2 (d) 5

4. $(-3x) \times (-5y) =$ .....

   (a) $-15xy$ (b) $-8xy$ (c) $8xy$ (d) $15xy$

5. The multiplicative inverse of the number $\left(\frac{1}{2}\right)^{zero}$ is .....

   (a) 2 (b) -2 (c) 1 (d) -1

6. If $\frac{2}{5}x = 10$, then $\frac{3}{5}x =$ .....

   (a) 25 (b) 15 (c) 20 (d) 5

3 [a] **Subtract :** $-a^2 - 5ab + 4b^2$ **from** $3a^2 - 2ab - 2b^2$

[b] **Simplify :** $5(2x - 1) - 3(x^2 - 1) + x(5x - 1)$, then find the numerical value of the expression when $x = 1$

4 **[a]Find the rational number half way between :** $\frac{9}{4}$ and $\frac{17}{6}$

[b]Use the property of distribution to calculate the value of : $\frac{-3}{7} \times 8 + 5 \times \left(\frac{-3}{7}\right) + \left(\frac{-3}{7}\right)$

5 **[a]Find the value of x if the arithmetic mean of the values :** $8 , x , 7 , 5$ **is** 6

[b]Find the value of k which makes the expression :

$2x^3 - x^2 - 5x + k$ divisible by $2x - 3$

2 Cairo Governorate

Western Cairo Educational Zone
Mathematics Inspection

Answer the following questions :

1 **Choose the correct answer from the given ones :**

1 $\frac{-3}{5}$ ..... $\frac{-2}{3}$

(a)< (b)≤ (c)> (d)=

2 The remainder of subtracting $-5x$ from $3x$ is .....

(a)$-2x$ (b)$2x$ (c)$-8x$ (d)$8x$

3 If the degree of the algebraic term $2a^3b^n$ is ninth , then n = ...

(a)8 (b)6 (c)2 (d)9

4 If $|k| = 3$, then k = ...

(a)3 (b)-3 (c)± 3 (d)33

5 The arithmetic mean of the values : 1 , 6 , 4 , 8 , 6 is .....

(a)25 (b)5 (c)6 (d)8

6 If $\frac{x}{y} = 1$, then $2x - 2y =$ .....

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

2 **Complete each of the following :**

1 $2a^3 \times 3ab =$ .....

2 The mode of the values : 3 , 3 , 5 , 4 , 4 , 3 is .....

3 1 , 1 , 2 , 3 , 5 , 8 , ... , ... (in the same pattern).

4 The multiplicative inverse of the number 1 is .....

5 If the order of the median of a set of values is the fourth , then the number of these values equals .....

6 $\frac{-1}{x} \in \mathbb{Q}$ when $x \neq$ .....

3 **[a]Use the distribution property to find the value of :** $\frac{3}{5} \times 6 + \frac{3}{5} - \frac{3}{5} \times 2$

[b]Find two rational numbers that lie between : $\frac{3}{4}$ and $\frac{1}{2}$

4 **[a]Simplify to the simplest form :** $(x - 2)(x + 2) + 4$

[b]Add : $2x - 7y + z$ **and** $5z + 6y - 2x$

5 **[a]Divide :** $21x^2y + 35xy^3 - 7xy$ **by** $7xy$ (where $xy \neq 0$)

[b]This table shows pupil's marks of mathematics in five months :

Months	Oct.	Nov.	Dec.	Feb.	March.
Marks	40	30	55	45	35

Find the arithmetic mean of the marks.

3 Giza Governorate

El-Agouza Directorate
El-Manar Islamic Language School

Answer the following questions :

1 **Choose the correct answer :**

1 $\frac{3}{4}$ = ... %

(a)30 (b)35 (c)40 (d)75

2 The remainder of subtracting $-5x$ from $3x$ is .....

(a)$-2x$ (b)$2x$ (c)$8x^2$ (d)$8x$

3 The coefficient of the algebraic term $2x^3$ is .....

(a)2 (b)3 (c)4 (d)5

4 The mode of the values : 13 , 16 , 19 , 13 , 19 , 19 , 11 is .....

(a)16 (b)13 (c)19 (d)11

5 If $5x = 3y$, then $x : y$ = ...

(a)5 : 3 (b)3 : 5 (c)$-5 : 3$ (d)$-3 : 5$

6 $\left|\frac{-2}{3}\right|$ ..... zero.

(a)< (b)> (c)= (d)≤

2 **Complete the following :**

1 The median of the values : 3 , 8 , 5 , 6 , 2 is .....

2 If $\frac{x}{y} = 1$, then $2x - 2y$ = ...

3 If $\frac{5}{x-3}$ is a rational number , then $x \neq$ .....

4 $2x^2y \times \ldots\ldots = 12x^3y$

5 $(2x-3)^2 = 4x^2 - \ldots\ldots + 9$

6 $(a^2 + a) \div a = \ldots\ldots$ (where $a \neq 0$)

3 **[a] Use the distribution property to get the result of :** $7 \times 133 + 7 \times 35 - 7 \times 18$

[b] Subtract : $3x - 4$ **from** $4x + 1$

4 **[a] Simplify to the simplest form :** $(2x-3)(2x+3) + 9$

[b] Complete using the common factor : $7x^2 + 14y^2 = 7(\ldots\ldots + \ldots\ldots)$

5 **[a] Find three rational numbers between :** $\frac{1}{2}$ and $\frac{1}{3}$

[b] The following table shows the marks of a student in six examination :

Months	Oct	Nov	Dec	Feb	March	April
Marks	30	35	42	37	44	50

Find the arithmetic mean of the marks.

4 Giza Governorate

El-Haram Directorate
Maths Supervision

Answer the following questions :

1 **Choose the correct answer :**

1 The mode of the values : 3 , 7 , 10 , 4 , 7 , 3 , 4 , 3 , 10 is .....

(a) 3 (b) 4 (c) 7 (d) 10

2 The number $\frac{3}{x-5}$ is a rational number if $x \neq$ .....

(a) -5 (b) -3 (c) 3 (d) 5

3 If $\frac{a}{b} = 1$, then $2a - 2b =$ .....

(a) 3 (b) 2 (c) 1 (d) 0

4 The coefficient of the algebraic term $-4x^3$ is .....

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

5 If $(x+3)(x-3) = x^2 + k$, then $k =$ .....

(a) 9 (b) -9 (c) -6 (d) 6

6 The algebraic term $4a^2b^2$ is of the ..... degree.

(a) second (b) third (c) fifth (d) fourth

2 Complete the following :

1. The arithmetic mean of the values : 2 , 3 , 8 , 2 , 5 is .....
2. The order of the median of the values : 4 , 12 , 9 , 8 , 2 is .....
3. The number that lies at half way between $\frac{8}{13}$ and $\frac{12}{13}$ is .....
4. $7x^3y^2 \times$ ..... $= 35x^4y^2$
5. The remainder of subtracting $(-3y)$ from $(4y)$ is .....
6. $3\frac{1}{2} \times$ ..... $= 1$

3 [a] Add : $2x^2 - 5x + 3$ and $4x - x^2 - 2$

[b] Use the distribution property to find the value of : $\frac{27}{16} \times 11 + \frac{27}{16} \times 7 - \frac{27}{16} \times 2$

4 [a] Factorize by identifying H.C.F : $12xy^2 + 18x^2y - 6x^2y^2$

[b] Reduce : $(x-3)^2 - (x-3)(x+3)$

5 [a] Find three rational numbers between : $\frac{3}{5}$ and $\frac{1}{4}$

[b] Subtract : $2x - 5y + z$ from $3x + y - 2z$

5 Alexandria Governorate

West Alexandria Educational Zone
Mathematics Supervision

Answer the following questions :

1 Choose the correct answer :

1. If the order of the median for a set of values is the fifth , then the number of these values equals .....

(a) 3 (b) 5 (c) 7 (d) 9

2. If $\frac{5}{x+2}$ is a rational number , then $x \neq$ .....

(a) -2 (b) zero (c) 2 (d) 5

3. The algebraic term $6x^3y^2$ is of the ..... degree.

(a) third (b) fourth (c) fifth (d) sixth

4. The ratio between the perimeter of a square and its side length equals .....

(a) 1 : 4 (b) 4 : 1 (c) 1 : 2 (d) 2 : 1

5. If $\frac{x}{y} = 1$, then $2x - 2y =$ .....

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

6. $0.25 =$ ..... %

(a) 25 (b) 250 (c) 2.5 (d) 0.25

2 Complete the following :

1 The arithmetic mean for the values : 18 , 36 , 24 , 6 is .....

2 $14\frac{1}{2} + \left(-11\frac{1}{2}\right) =$ ..... $+ \left[11\frac{1}{2} + \left(-11\frac{1}{2}\right)\right]$

3 If the mode for the values : 15 , 9 , $x + 1$, 9 , 15 is 9 , then $x =$ .....

4 $4\frac{1}{2} \times$ ..... $= 1$

5 $24\,x^4\,y^6 = 6\,x^2\,y^3 \times$ .....

6 The multiplicative inverse of the rational number $-\frac{2}{3}$ is .....

3 [a] If $x = -\frac{1}{3}$, $y = \frac{3}{4}$, $z = 3$

, find in the simplest form the numerical value of : $x\,y + y\,z$

[b] **Divide :** $x^3\,y - 4\,x\,y^2 + 6\,x\,y$ **by** $x\,y$

where $x \neq$ zero , $y \neq$ zero

4 [a] **Using the distribution property , find the value of :**

$\frac{3}{7} \times 2 + \frac{3}{7} \times 6 - \frac{3}{7}$ (Without using calculator).

[b] **Subtract :** $(2x + 6y - 7)$ **from** $(2x - 5y + 3)$

5 [a] **Simplify to the simplest form :** $(x - 3)(x + 3) + 9$, and calculate the numerical value of the result when $x = 5$

[b] If the arithmetic mean of the numbers 5 , 9 , 4 , 3 , k + 4 is 6

, then find : the value of k

6 El-Kalyoubia Governorate

Maths Supervision
Official Language Schools

Answer the following questions :

1 Choose the correct answer :

1 If the number $\frac{x-2}{3}$ has no multiplicative inverse , then $x =$ .....

(a) 0 (b) 1 (c) 2 (d) 3

2 If the median of the set of values : k + 3 , k + 2 , k + 4 is 9 , then k = ...

(a) 3 (b) 4 (c) 5 (d) 6

3 If $\frac{x+4}{x+2}$ is a rational number , then $x \neq$ .....

(a) -4 (b) -2 (c) 2 (d) 4

4 If $3x = 12$, then $2x + 3 =$ .....

(a) 11 (b) 24 (c) 4 (d) 7

5 $1.8\dot{3} - 2\frac{1}{3} =$ .....

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

6 $\frac{1}{4}$ of the number 2^{20} equals .....

(a) 2^5 (b) 2^{10} (c) 2^{18} (d) 2^{19}

2 Complete each of the following :

1 $(x-3)(x+5) = x^2 +$ ..... $- 15$

2 The number which lies in the middle of the way between $\frac{1}{7}$ and $\frac{5}{7}$ is .....

3 If the algebraic term $3^2 x^n y^3$ is of the ninth degree , then n = ...

4 If the sum of five values is 20 , then the mean of these values is .....

5 If four times of a number = 100 , then $\frac{1}{5}$ of this number = ...

6 If the mode of the set of values : 3 a , 5 a , a , 3 a equals 18 , then a = ...

3 [a] If $a = \frac{1}{2}$ and $b = \frac{-3}{2}$, then find the value of : $(a-b)^2$

[b] **By using the distribution property , find the result of :** $\frac{15}{19} \times 12 + \frac{15}{19} \times 8 - \frac{15}{19}$

4 [a] Factorize the following expression by taking H.C.F. : $18x^2y^3 + 6x^3y^2 - 3x^2y^2$

[b] **Subtract :** $5x^2 - 3xy + y^2$ **from** $3y^2 + x^2 - 2xy$

5 [a] Simplify in the simplest form : $(x-5)(x+5) + 25$, then find the numerical value of the expression when $x = -2$

[b] **The following table represents the marks of 24 students in a test :**

The mark	7	8	9	10	Total
No. of students	4	k	6	5	24

Find : 1 The value of k 2 The mode mark.

7 El-Monofia Governorate

Ashmoun Directorate
Maths Supervision

Answer the following questions :

1 Choose the correct answer :

1 The mode of the values : $a+4$, $a+5$, $a+1$ is .....

(a) $a+5$ (b) $a+1$ (c) $a+4$ (d) none.

2 The number that lies at half distance between $\frac{1}{3}$ and $\frac{5}{9}$ is .....

(a) $\frac{2}{3}$ (b) $\frac{3}{4}$ (c) $\frac{4}{5}$ (d) $\frac{4}{9}$

3 If the mean of six values is 15 , then the sum of these values is .....

(a) 6 (b) 15 (c) 21 (d) 90

4 The H.C.F. of the expression : $3x^2y - 6x$ is .....

(a) $3x$ (b) $6x$ (c) $3xy$ (d) $xy - 1$

5 The rational number $\frac{x-5}{x+3} = 0$, then $x =$ .....

(a) 3 (b) -3 (c) 5 (d) -5

6 If $\frac{x}{y} = \frac{2}{3}$, then $\frac{3x}{2y} =$ .....

(a) $\frac{1}{3}$ (b) $\frac{1}{2}$ (c) $\frac{9}{4}$ (d) 1

2 Complete :

1 $24x^2y^6 \div$ ..... $= 6x^2y^3$

2 The degree of the algebraic expression : $x^3y + y^2x + 6$ is .....

3 9 , 8 , 6 , 3 , ... , ... (in the same pattern).

4 If $\frac{3}{x-2}$ is a rational number , then $x \neq$ .....

5 $35x^3y^4 \div 5x^2y^2 =$ ..... (where $x \neq 0$, $y \neq 0$)

6 The additive inverse of $(-7)^0$ is .....

3 [a] What is the increase of : $x^2 - 5x - 1$ than $3x^2 + 2x - 3$?

[b] By using the distribution property , find the value of :

$\frac{4}{9} \times 10 + \frac{4}{9} \times 16 + \frac{4}{9}$

4 **[a] Divide :** $20\ a^3\ b^2 + 15\ a^2\ b^3 + 10\ a\ b$ **by** $5\ a\ b$ where $a \neq 0$, $b \neq 0$

[b] Simplify to the simplest form : $(2X - 3)(2X + 3) + 9$, then find the numerical value of the result when $X = 5$

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5 **[a] Find the sum of the two expressions :** $3X + 2y - 5z$ and $2X - 7y + 9z$

[b] The following table shows the marks of the two students Ahmed and Ramy in four tests :

Ahmed	15	6	8	11
Ramy	10	8	12	14

Which is greater : the arithmetic mean of Ahmed or Ramy ?

8 El-Dakahlia Governorate — Maths Supervision

Answer the following questions :

1 **Choose the correct answer from those given :**

1 $\frac{2}{5}$ = ... %

(a) 0.4 (b) 50 (c) 40 (d) 25

2 The arithmetic mean of the values : 3 , 2 , 8 , 5 , 7 is .....

(a) 3 (b) 5 (c) 7 (d) 8

3 The number that lies half way between $\frac{7}{9}$ and 1 is .....

(a) 0 (b) $\frac{2}{9}$ (c) $1\frac{7}{9}$ (d) $\frac{8}{9}$

4 $(X + 5)(X - 5) = X^2 -$ .....

(a) -5 (b) 5 (c) 25 (d) -25

5 If the mode of 7 , 5 , $a - 1$, 5 , 7 is 5 , then a = ...

(a) 5 (b) 6 (c) 7 (d) 11

6 If $X + 20 = 40$, then $2X$ = ...

(a) 20 (b) 40 (c) 10 (d) 22

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2 **Complete each of the following :**

1 $\frac{5}{7} \times$ ..... = 1

2 If the order of the median for some of values is fourth , then the number of these values is .....

3 The multiplicative inverse of $\frac{-2}{3}$ is .....

4 If $\frac{8}{x-5}$ is a rational number , then $x \neq$ .....

5 $3x^4y^3 \times$ ..... $= 12x^4y^5$

6 The remainder of subtracting 3 a from 4 a is .....

3 [a] Use the distribution property to find the value of : $\frac{3}{8} \times 5 + \frac{3}{8} \times 9 + \frac{3}{8} \times 2$

[b] Find the quotient of dividing : $x^2 + 5x + 6$ **by** $x + 3$ (when $x \neq -3$)

4 [a] Find three rational numbers that lie between : $\frac{1}{4}$ and $\frac{1}{5}$

[b] Add : $2x^2 - 5x + 3$ **and** $x^2 + 5x - 2$

5 [a] 1 Factorize by identifying the H.C.F : $6x^3 + 3xy$

2 Subtract : $5a + 3b - 1$ **from** $5a - 3b - 1$

[b] From the following values : 2 , 5 , 8 , 6 , 3 , 6

1 Find the arithmetic mean. 2 Find the median.

3 Find the mode.

9 Suez Governorate

Directorate of Education
Inspection of Mathematics

Answer the following questions :

1 Complete :

1 $12x^3 + 4x = 4x($ ..... + ... $)$

2 The additive inverse of $\left(\frac{2}{3}\right)^0$ is .....

3 If $\frac{x-2}{x+3} = 0$, then $x =$ .....

4 The rational number that lies in half of the way between $\frac{3}{5}$ and $\frac{2}{5}$ is .....

5 The coefficient of the algebraic term $5xy^2$ is .....

6 If $\frac{4}{7}x = \frac{4}{7}$, then $x =$ .....

2 Choose the correct answer :

1 The multiplicative inverse of the number $\frac{-1}{5}$ is .....

(a) 1 (b) -1 (c) 5 (d) -5

2 The degree of $5xy^2$ is .....

(a) first. (b) second. (c) third. (d) fourth.

3 If $\frac{x}{y} = 1$, then $5x - 5y =$ .....

(a) 0 (b) 1 (c) 2 (d) -1

4 If $\frac{x-2}{x-5} \in \mathbb{Q}$, then $x \neq$ .....

(a) 2 (b) -2 (c) 5 (d) -5

5 If the order of the median for a set of values is the third , then the number of these values is .....

(a) 3 (b) 4 (c) 5 (d) 7

6 $6a^5b^4 =$ ..... $\times 2a^3b^2$

(a) $3ab^2$ (b) $2a^2b$ (c) $3a^2b$ (d) $3a^2b^2$

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3 **[a] Find by inspection :** $(x+3)(x-3)$

[b] Divide : $3a^3b^2 - 6ab^2 + 12ab$ **by** $3ab$ (where $a \neq 0$, $b \neq 0$)

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4 **[a] Using addition properties in $\mathbb{Q}$, find :** $\frac{2}{7} + \frac{3}{4} + \frac{5}{7} + \frac{1}{4}$

[b] Subtract : $2x + 6y - 7$ **from** $2x - 5y + 2$

[c] Find the arithmetic mean of the values : $2-a$, 4 , 1 , 5 , $3+a$

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5 **[a]** If the mode of the values : 15 , 9 , $x+1$, 9 , 15 is 9 , **find :** the value of x

[b] Using the distribution property , find : $\frac{3}{7} \times 5 + \frac{3}{7} \times 6 + \frac{3}{7} \times 3$

[c] Find the median of the values : 9 , 18 , 5 , 7 and 11

10 Kafr El-Sheikh Governorate — Maths Supervision

Answer the following questions :

1 **Choose the correct answer :**

1 The H.C.F. for the expression $3x^2y - 6x$ is .....

(a) $3x$ (b) $6x$ (c) $3xy$ (d) $xy - 2$

2 The additive identity in $\mathbb{Q}$ is .....

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

3 The mode of : 3 , 4 , 3 , 4 , 5 , 3 , 6 is .....

(a) 3 (b) 4 (c) 5 (d) 6

4 $1 - 40\% =$ .....

(a) 29 (b) 60 (c) 60% (d) 39%

5 If $|k| = 7$, then $k =$ .....

(a) 7 (b) -7 (c) ± 7 (d) $\varnothing$

6 4 kg. = ... gm.

(a) 40 (b) 400 (c) 4000 (d) 40000

2 Complete the following :

1 The algebraic term $4x^2y^2$ is of the ..... degree.

2 The rational number $\frac{x+5}{x-3}$ = zero , if x = ...

3 The number that lies in the middle of the distance between $\frac{1}{5}$ and $\frac{2}{5}$ is .....

4 The median for the values : 4 , 8 , 3 , 5 , 7 is .....

5 The multiplicative inverse for $\frac{-5}{2}$ is .....

6 If the mean of : 3 , 5 , x is 5 , then x = ...

3 [a] Use the property of distribution to find : $\frac{3}{7} \times \frac{5}{6} + \frac{3}{7} \times \frac{7}{6} + \frac{3}{7}$

[b] Find the sum of : $3x^2 - 4x + 3$ **and** $-x^2 + 3x - 3$

4 [a] Find three rational numbers that lie between : $\frac{1}{3}$ and $\frac{1}{2}$

[b] Find in the simplest form : $(x-4)(x+4) + 16$, then find the numerical value at $x = -2$

5 [a] Divide : $14x^2y - 35xy^2 + 7xy$ **by** $7xy$ where $x \neq 0$, $y \neq 0$

[b] The following table shows the marks of a pupil in five tests :

Subject	Arabic	English	Math	Social studies	Science
Mark	7	6	9	8	5

Find : 1 The arithmetic mean. 2 The median.

11 El-Fayoum Governorate — Directorate of Education

Answer the following questions : ***(Calculator is allowed)***

1 Choose the correct answer from those given :

1 The rational number $\frac{x-3}{5-x} = 0$, then x = ...

(a) 5 (b) -1 (c) -3 (d) 3

2 The rational number that lies one third of the way between 5 and 9 from the smaller is .....

(a) $5\frac{1}{3}$ (b) $5\frac{2}{3}$ (c) $6\frac{1}{3}$ (d) 7

3 If $\frac{x}{y} = 1$, then $5x - 5y$ = ...

(a) 5 (b) 1 (c) 0 (d) $\frac{1}{2}$

4 The arithmetic mean of the values : 4 , 6 , 7 , 8 , 15 equals .....

(a) 7 (b) 8 (c) 5 (d) 15

5 The smallest prime number is .....

(a) 0 (b) 1 (c) 2 (d) 3

6 If $\frac{2}{5} x = 12$, then $\frac{3}{5} x =$ .....

(a) 18 (b) 24 (c) 6 (d) 12

2 Complete the following :

1 If the rational number k + 5 has not a multiplicative inverse , then k = ...

2 If the mode of the values : 3 , 4 , 5 , 3 , 4 , k + 2 is 4 , then k = ...

3 1 , 4 , 7 , 10 , ... , ... (in the same pattern).

4 The median of the values : 3 , 5 , 4 , 7 , 11 is .....

5 $5x^2 + 15xy = 5x$ (..... + ...)

6 The degree of the algebraic term $2x^3 y$ is .....

3 [a] Use the distribution property to find : $\frac{5}{7} \times \frac{1}{2} + \frac{5}{7} \times \frac{1}{2} + \frac{5}{7} \times 6$

[b] Divide : $18a^3b^2 - 12a^2b^3 + 24a^2b^2$ **by** $6ab$ (where $a \neq 0$, $b \neq 0$)

4 [a] Subtract : $5x^2 - 4x + 11$ **from** $3x^2 + 5x$

[b] Simplify : $(2x - 2)(2x + 2) + 5$, then find the value of the result when $x = -1$

5 [a] Find three rational numbers that lie between : $\frac{1}{3}$ and $\frac{3}{5}$

[b] The following table shows Rana's marks in math exam in 5 months :

Months	October	November	December	January	February
Marks	27	28	28	29	30

Find the arithmetic mean of the marks.

12 Assiut Governorate

Administration of Distinguished Governmental Language Schools

Answer the following questions : (Calculator is allowed)

1 Choose the correct answer :

1 The arithmetic mean of the values : 1 , 6 , 4 , 8 , 6 is .....

(a) 25 (b) 5 (c) 6 (d) 8

2 $\mathbb{Z}$ ..... $\mathbb{Q}$

(a) $\in$ (b) $\notin$ (c) $\subset$ (d) $\not\subset$

3 $|-\frac{3}{2}|$ ..... $\frac{1}{2}$

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

4 If $\frac{x}{y} = 1$, then $2x - 2y =$ .....

(a) 3 (b) 2 (c) 1 (d) 0

5 The median for the values : 5 , 4 , 7 is .....

(a) 4 (b) 5 (c) 7 (d) 16

6 $(4x - 3)(x - 4) =$ .....

(a) $4x^2 - 19x - 12$ (b) $4x^2 - 7$

(c) $4x^2 - 12$ (d) $4x^2 - 19x + 12$

2 Complete each of the following :

1 $2\frac{1}{5} \times$ ..... $= 1$

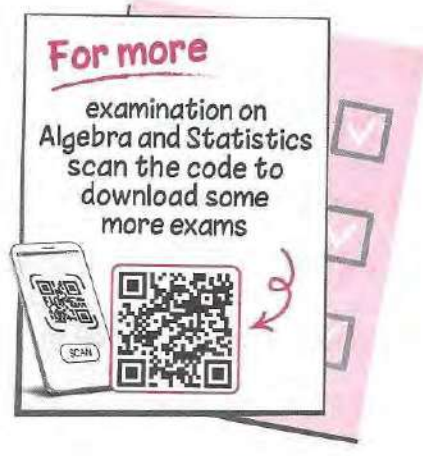
2 If $\frac{4}{x}$ is a rational number , then $x \neq$ .....

3 $\frac{4}{5}$ = ... %

4 The mode of the values : 1 , 3 , 7 , 3 , 6 , 7 and 3 is .....

5 The coefficient of the algebraic term $5xy$ is .....

6 The additive inverse of the number zero is .....



3 [a] Use the distribution property to find the value of : $\frac{5}{17} \times 10 + \frac{5}{17} \times 23 + \frac{5}{17}$

[b] **Divide :** $24x^4 - 18x^3 - 42x^2$ **by** $6x^2$ (where $x \neq$ zero)

4 [a] If $x = -\frac{1}{3}$, $y = \frac{3}{4}$ and $z = -3$, find the value of : $xy + yz$

[b] **Subtract :** $a + 2b + 3$ **from** $a - 3b + 5$

5 [a] Simplify : $(x - 3)(x + 3) + 9$, then find the numerical value of the result when $x = 5$

[b] If the arithmetic mean of the numbers : 8 , 7 , 5 , 9 , 4 , 3 , $k + 4$ is 6 , then find : the value of k

Final Examinations

on Algebra and Statistics

Model Examinations of the School Book on Algebra and Statistics

Model 1

Answer the following questions :

1 Complete each of the following :

1. $2\frac{1}{5} \times$ ..... $= 1$
2. If the order of the median of a set of values is the fourteenth , then the number of these values equals .....
3. $0.18 - 30\ \% =$ .....
4. $7x^3y^2 \times$ ..... $= 21x^3y^5$
5. $(2x - 3)(x + 5) = 2x^2 +$ ..... $- 15$

2 Choose the correct answer from those given :

1. The rational number that lies one third of the way between 8 and 12 from the smaller is .....

(a) $8\frac{1}{3}$ (b) 10 (c) $9\frac{1}{3}$ (d) $10\frac{2}{3}$

2. If the mode of the values $7, 5, x + 4, 5, 7$ is 5 , then $x =$ .....

(a) 1 (b) 4 (c) 5 (d) 7

3. If $\Delta + \square = 20$, $\Delta + \Delta + \square = 35$, then $\Delta =$ .....

(a) 15 (b) 20 (c) 5 (d) 10

4. The arithmetic mean of the values $1, 6, 4, 8, 6$ is .....

(a) 25 (b) 5 (c) 6 (d) 8

5. If $\frac{2}{5}x = 10$, then $\frac{3}{5}x =$ .....

(a) 25 (b) 15 (c) 20 (d) 5

6. $0.7 + 0.\dot{3} =$ .....

(a) 1 (b) 3.7 (c) $0.\dot{3}7$ (d) $1\frac{1}{30}$

3 [a] Subtract : $5x^2 + y^2 - 3xy + 1$ **from** $6x^2 - 2xy + 3y^2$

[b] Use the distribution property to find the value of :

$$\frac{27}{16} \times \frac{11}{7} + \frac{27}{16} \times \frac{11}{7} - \frac{27}{16} \times \frac{6}{7}$$

4 [a] Simplify to the simplest form : $(2x - 3)(2x + 3) + 7$, then calculate the numerical value of the result when $x = -1$

[b] Find three rational numbers that lie between : $\frac{1}{2}$ and $\frac{1}{3}$

5 **[a] Divide :** $2x^3 + 3x^2 - 4x - 6$ **by** $2x + 3 \left(\text{where } x \neq -\frac{3}{2}\right)$

[b] The following table shows Gehad's marks in mathematics exam in 6 months :

Month	October	November	December	February	March	April
Mark	30	35	42	37	44	50

Find the arithmetic mean of the marks.

Model 2

Answer the following questions :

1 **Complete each of the following :**

1 $24x^4y^6 = 6x^2y^3 \times$ .....

2 The remainder of subtracting $-3x$ from $2x$ is .....

3 1 , 1 , 2 , 3 , 5 , 8 , ... (in the same pattern)

4 If the mode of the values 7 , 5 , a + 3 , 5 , 7 is 7 , then a = ...

5 $5x^2 + 15xy = 5x$ (..... + ...)

2 **Choose the correct answer from those given :**

1 The algebraic term $6x^3y^2$ is of the ..... degree.

(a) third (b) fourth (c) fifth (d) sixth

2 The rational number that lies in half way between $\frac{1}{3}$ and $\frac{5}{9}$ is .....

(a) $\frac{2}{3}$ (b) $\frac{3}{4}$ (c) $\frac{4}{9}$ (d) $\frac{5}{27}$

3 The multiplicative inverse of the number $\left(\frac{1}{2}\right)^0$ is .....

(a) 2 (b) – 2 (c) 1 (d) –1

4 If $\frac{5}{x+2}$ is a rational number , then $x \neq$ .....

(a) – 2 (b) 0 (c) 2 (d) 5

5 The median of the values 5 , 4 , 7 is .....

(a) 4 (b) 5 (c) 7 (d) 16

6 If the arithmetic mean of the values 3 , 5 and $x + 2$ is 4 , then the arithmetic mean of the two values $5 - x$, $5 + 2x$ is .....

(a) 6 (b) 4 (c) 3 (d) 2

Algebra and Statistics

3 **[a] Using the distribution property , find the value of :** $\frac{3}{7} \times 2 + \frac{3}{7} \times 6 - \frac{3}{7}$

[b] Find three rational numbers that lie between : $\frac{1}{2}$ and $\frac{1}{3}$

4 **[a] What is the increase of :** $7x + 5y + z$ **than** $2x + 6y + z$?

[b] Divide : $14x^2y - 35xy^2 + 7xy$ **by** $7xy$ where $x \neq 0$ and $y \neq 0$

5 **[a] Simplify to the simplest form :** $(x - 3)(x + 3) + 9$ **, then**

calculate the numerical value of the result when $x = 5$

[b] If the arithmetic mean of the numbers : 8 , 7 , 5 , 9 , 4 , 3 , k + 4 is 6

, then find the value of : k

Model examination for the merge students

Answer the following questions :

1 Complete each of the following :

1 The algebraic term $5x$ y is of the ..... degree.

2 $(x - 3)$ (..... + ...) $= x^2 - 9$

3 The rational number which hasn't a multiplicative inverse is .....

4 The median of the values 3 , 4 , 5 is .....

5 The number $\frac{4}{x}$ is a rational number if $x \neq$ .....

2 Choose the correct answer from those given :

1 If $\frac{4}{7}x = \frac{4}{7}$, then $x =$ .....

(a) 1 (b) 0 (c) 4 (d) 7

2 The arithmetic mean of the values 2 , 3 , 8 , 2 , 5 equals .....

(a) 3 (b) 2 (c) 4 (d) 8

3 The additive inverse of the number – 3 is .....

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

4 The remainder of subtracting $7x$ from $9x$ equals .....

(a) $2x$ (b) $16x$ (c) $-2x$ (d) 0

5 The mode of the values 3 , 3 , 4 , 4 , 5 , 3 is .....

(a) 4 (b) 22 (c) 5 (d) 3

3 [a] Using the distribution property , complete to find :

$\frac{5}{7} \times 8 + \frac{5}{7} \times 5 + \frac{5}{7} = \frac{5}{7}$ (..... + ... + ...) $= \frac{5}{7}$ (.....) = ...

[b] If $a = \frac{1}{2}$, $b = -2$ **, complete the following :**

$b \div a =$ (.....) ÷ (.....) = (.....) × (.....) = ...

4 Put true (✔) or false (✘) :

1 The quotient of $12x^4 + 6x$ by $6x$ is $2x^3 + 1$ ( )

2 The H.C.F. of : $15x^5 + 5x$ is $5x^5$ ( )

Algebra and Statistics

3 The rational number that lies between $\frac{1}{4}$ and $\frac{3}{4}$ is $\frac{1}{2}$ ( )

4 $5x + 3x = 8x$ ( )

5 If $(x + 4)^2 = x^2 + k + 16$, then $k = 4x$ ( )

5 Match from column (A) to column (B) :

Column (A)	Column (B)
1 If $\frac{x-7}{5} = 0$, then $x =$	3
2 $3x^2 + 15y =$ ..... $(x^2 + 5y)$	7
3 $(3x + 5) + (4x - 5) =$	50
4 $\frac{1}{2} =$ ..... %	1
5 If $\frac{a}{b} = \frac{1}{2}$, then $\frac{2a}{b} =$	$7x$

Some Schools Examinations on Algebra and Statistics

1 Cairo Governorate

El-Moudi Educational Zone

Answer the following questions :

1 Complete each of the following :

1 The median of the values : 5 , 9 , 7 , 4 , 3 , 8 is .....

2 The remainder of subtracting $-3x$ from $2x$ is .....

3 $5x^2 + 15xy = 5x$ (..... + ...)

4 If the mode of the values : 8 , 5 , y + 3 , 5 , 8 is 8 , then y = ...

5 The rational number that hasn't a multiplicative inverse is .....

2 Choose the correct answer :

1 The mean of the values : 4 , 7 , 3 , 9 , 2 is .....

(a) 2 (b) 3 (c) 5 (d) 7

2 The additive inverse of the number $\left(\frac{1}{2}\right)^{zero}$ is .....

(a) 2 (b) -2 (c) 1 (d) -1

3 If $\frac{5}{x+2}$ is a rational number , then $x \neq$ .....

(a) -2 (b) 0 (c) 2 (d) 5

4 The number that lies at half way between $\frac{1}{3}$ and $\frac{5}{9}$ is .....

(a) $\frac{2}{3}$ (b) $\frac{5}{9}$ (c) $\frac{4}{9}$ (d) $\frac{5}{27}$

5 The algebraic term : $6x^3y$ is of the ..... degree.

(a) first (b) fourth (c) sixth (d) fifth

6 If $\frac{a}{b} = 1$, then $5a - 5b =$ .....

(a) zero (b) 1 (c) 3 (d) 5

3 [a] Use the distribution property to find the value of : $\frac{3}{7} \times \frac{5}{6} + \frac{3}{7} \times \frac{7}{6} - \frac{3}{7}$

[b] Simplify : $(x - 3)(x + 3) + 7$

4 [a] Write three rational numbers between : $\frac{1}{3}$ and $\frac{5}{6}$

[b] Factorize by identifying the H.C.F. : $3a(4a + 5b) - 2b(4a + 5b)$

5 [a] Add : $3a^2 + 2a + 5$ **and** $2a^2 - 5a + 3$

[b] Divide : $x^2 + 6x + 5$ **by** $x + 5$ (where $x \neq -5$)

Answer the following questions :

1 Choose the correct answer :

1 The algebraic term : $6x^3y$ is of the ..... degree.

(a) first (b) fourth (c) sixth (d) fifth

2 If the mode of the values : $7, 5, x+4, 5, 7$ is 5 , then $x =$ .....

(a) 1 (b) 4 (c) 5 (d) 7

3 If the rational number : $\frac{x-2}{x+3} = 0$, then the value of $x =$ .....

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

4 The multiplicative inverse of the number $\left(\frac{1}{2}\right)^{zero}$ is .....

(a) -2 (b) 2 (c) 1 (d) -1

5 Subtracting $-2x$ from $3x$ equals .....

(a) x (b) $-5x$ (c) $5x$ (d) $-6x^2$

6 If the arithmetic mean for the numbers : $3, 5, x$ is 4 , then $x =$ .....

(a) 3 (b) 4 (c) 5 (d) 6

2 Complete the following :

1 The median for the values : $4, 8, 3, 5, 7$ is .....

2 If $\frac{x}{y} = 1$, then $x - y =$ .....

3 $(x-5)(x+5) =$ .....

4 $6x^3 = 2x \times$ .....

5 The number that lies at half way between $\frac{1}{3}$ and $\frac{5}{9}$ is .....

3 [a] Add : $3x - 2y + 5$ **and** $x + 2y - 2$

[b] Find three rational numbers that lie between : $\frac{1}{3}$ **and** $\frac{1}{2}$

4 [a] Use the distribution property to find the value of : $\frac{3}{7} \times 2 + \frac{3}{7} \times 6 - \frac{3}{7}$

[b] Divide : $21x^2y - 7xy + 35xy^3$ **by** $7xy$ **(where** $xy \neq 0$**)**

5 **[a] Simplify to the simplest form :** $(X-3)(X+3)+9$

[b] Subtract : $4X^2-5X+3$ **from** $5X^2+4X-3$

[c] This table shows a pupil's marks of mathematics in five months :

Month	Oct.	Nov.	Dec.	Feb.	March
Marks	40	30	55	45	35

Find the arithmetic mean of the marks.

3 Cairo Governorate

Western Cairo Educational Zone
Mathematics Inspection

Answer the following questions :

1 **Choose the correct answer from the given ones :**

1 The number $\frac{X-3}{X-5} \in \mathbb{Q}$, if $X \neq$ .....

(a) 3 (b) – 3 (c) 5 (d) – 5

2 The multiplicative inverse of the rational number $\frac{3}{2}$ is .....

(a) $\frac{2}{3}$ (b) $-\frac{3}{2}$ (c) – 0.6 (d) 0.6

3 $9a^7b^4 =$ ..... $\times a^7b$

(a) $3b^3$ (b) $9b^3$ (c) $-3ab$ (d) $9ab$

4 If the degree of the algebraic term : $2a^3b^n$ is ninth , then n = ...

(a) 8 (b) 6 (c) 2 (d) 9

5 The median of the values : 4 , 5 , 7 is .....

(a) 4 (b) 7 (c) 16 (d) 5

6 The mode of the values : 5 , 6 , 5 , 4 , 3 is .....

(a) 3 (b) 4 (c) 5 (d) 6

2 **Complete each of the following :**

1 $5X^2+15Xy = 5X($..... + ...$)$

2 If $X-y=3$, $X+y=5$, then $X^2-y^2=$ .....

3 The arithmetic mean of the values : 5 , 4 , 8 , 3 , 10 is .....

4 The rational number in half way between $\frac{1}{7}$ and $\frac{5}{7}$ is .....

5 $|-5|-|2| =$ .....

3 **[a] Use the property of distribution to find the value of :** $\frac{6}{14} \times 10 + \frac{6}{14} \times 5 - \frac{6}{14}$

[b] Find three rational numbers that lie between : $\frac{1}{7}$ and $\frac{1}{3}$

[c] Find the result of : $\frac{-3}{5} + \frac{2}{3}$

4 **[a] Divide :** $12x^3 + 8x^2 - 4x$ **by** $4x \, (x \neq 0)$

[b] Add : $4x^2 - 5x - 1$ **and** $5x + 3x^2 - 7$

5 **[a] Simplify to the simplest form :** $(2x - 3)(2x + 3) + 9$ **, then find the value of the result if** $x = -2$

[b] The following table shows the distribution of marks of 20 students in an exam :

Marks	7	8	9	10	Total
No. of students	5	9	4	2	20

Find the mode of these marks.

4 Giza Governorate

Al-Agoza Directorate
Supervision of Math

Answer the following questions :

1 **Choose the correct answer :**

1 If □ + □ + □ + △ + △ + △ = 60 , then □ + △ = ...

(a) 30 (b) 40 (c) 20 (d) 50

2 If the mode of the set of values : 5 , $x + 2$, 4 , 6 , 9 is 6 , then x = ...

(a) 2 (b) 4 (c) 6 (d) 5

3 The algebraic term : $3x^2y^3$ is of the ..... degree.

(a) fifth (b) third (c) sixth (d) fourth

4 The rational number $\frac{3 - x}{7 + x}$ = zero , when x = ...

(a) 7 (b) – 7 (c) 3 (d) – 3

5 If half of a number is 30 , then $\frac{3}{4}$ of this number is .....

(a) 48 (b) 42 (c) 40 (d) 45

6 The remainder of subtracting – 3 a from 2 a is .....

(a) 5 a (b) – 5 a (c) a (d) – a

2 Complete :

1 If the ratio $x : 25$ equals $2 : 5$, then $x =$ .....

2 The number $\frac{-4}{7}$ has an additive inverse = ...

3 The arithmetic mean of the values : 2 , 3 , 2 , 6 , 7 equals .....

4 $(3x + 2)(x - 4) = 3x^2$ ..... $- 8$

5 The median of the values : 2 , 5 , 4 , 6 , 3 is .....

3 [a] Use the distribution property to get the result of : $\frac{5}{19} \times 11 + \frac{5}{19} \times 9 - \frac{5}{19}$

[b] Add : $3x - 5y + 2$, $2x + 5y - 2$

4 [a] Find the quotient of dividing : $x^2 + 7x + 12$ **by** $x + 4$ (where $x \neq -4$)

[b] Simplify to its simplest form : $(2a - 3)(2a + 3) + 7$, then find the numerical value of the result at $a = -1$

5 [a] Find two numbers lying between : $\frac{1}{2}$, $\frac{4}{3}$ one of them is rational , the other is an integer.

[b] If the median of the values : $x + 5$, $x + 3$, $x + 8$ is 9 , then find the value of x

5 Giza Governorate

Omrania Directorate
Math Inspection

Answer the following questions :

1 Choose the correct answer :

1 The mode of the values : 6 , 8 , 6 , 1 , 1 , 9 , 8 , 2 , 8 is .....

(a) 1 (b) 6 (c) 8 (d) 9

2 $x^3 y \times x y^2 =$ .....

(a) $x^3 y^2$ (b) $3x^3 y^4$ (c) $x^4 y^3$ (d) $x^3 y^3$

3 The multiplicative inverse of $\left|\frac{-7}{8}\right|$ is .....

(a) $\frac{-7}{8}$ (b) $\frac{8}{7}$ (c) $\frac{7}{8}$ (d) $\frac{-8}{7}$

4 The degree of the expression : $x^3 + 2xy + 3y^2x^2$ is the ..... degree.

(a) 1^{st} (b) 2^{nd} (c) 3^{rd} (d) 4^{th}

5 $(-5x) + (-3x) - x =$ .....

(a) $-9x$ (b) $9x$ (c) $8x$ (d) $-8x$

6 $(3a + 2b)^2 = 9a^2 +$ ..... $+ 4b^2$

(a) 6 a b (b) 12 a b (c) 24 a b (d) 36 a b

2 Complete the following :

1 The arithmetic mean of the values : 22 , 18 , 15 , 25 and 30 is .....

2 $-\frac{1}{4}+$ ..... $=0$

3 $(x+4)(x-4)=x^2$ .....

4 The median of the values : 23 , 16 , 12 , 28 , 21 , 32 , 9 is .....

5 $7x(x+5y)=7x^2+$ .....

3 [a] By using the distribution property find : $\frac{5}{9}\times\frac{2}{7}+\frac{5}{9}\times\frac{1}{7}+\frac{5}{9}\times\frac{4}{7}$

[b] Subtract : $5x^2+2x-1$ **from** $8x^2-3x+7$

4 [a] If $a=\frac{1}{2}$, $b=-\frac{2}{3}$, $c=3$ **, find the value of :** c^2-6ab

[b] Simplify to the simplest form : $(5x-6)^2+60x-36$

5 [a] Divide : $x^2+12x+35$ **by** $x+5$ (where $x\neq-5$)

[b] The following table shows the marks of 50 students :

Marks	4	6	9	12	15	18
Frequency	6	13	16	7	5	3

Find the mode of these marks.

6 Alexandria Governorate

Middle Educational Zone
Maths Supervision

Answer the following questions :

1 Choose the correct answer :

1 $8.46\simeq$ ..... to the nearest tenth.

(a) 8.4 (b) 9 (c) 8 (d) 8.5

2 If $\frac{x}{8}=\frac{3}{6}$, then $x=$ .....

(a) 16 (b) 48 (c) 4 (d) 12

3 ..... is a terminating decimal.

(a) $\frac{7}{20}$ (b) $\frac{2}{11}$ (c) $\frac{7}{11}$ (d) $\frac{1}{3}$

4 The median for the values : 4 , 8 , 3 , 5 , 7 is .....

(a) 3 (b) 4 (c) 5 (d) 7

5 $\frac{4}{7}$ ..... $\frac{3}{5}$

(a) = (b) < (c) > (d) ≥

6 If the mode of the values : 7 , 5 , a + 3 , 5 , 7 is 7 , then a = ...

(a) 2 (b) 4 (c) 7 (d) 5

2 Complete each of the following :

1 The multiplicative inverse of $\left(\frac{1}{2}\right)^{zero}$ is .....

2 $100\ \% - \frac{1}{4}$ = ...

3 $(x + 5)(x +$ .....$) = x^2 +$ ..... $+ 15$

4 $5x^2 + 3$ is an algebraic expression of the ..... degree.

5 The arithmetic mean of the set of values : 1 , 6 , 4 , 8 , 6 is .....

3 [a] Factorize by identifying the H.C.F. : $9m^4n^2 - 6m^3n^3 + 12m^2n^4$

[b] Use the distribution property to find : $\left(-\frac{3}{7}\right) \times 8 + 5 \times \left(-\frac{3}{7}\right) + \left(-\frac{3}{7}\right)$

4 [a] Multiply : $(6x - 2y)(6x + 2y)$

[b] If $x = \frac{-1}{3}$, $y = \frac{3}{4}$, $z = -3$ **, find in the simplest form the numerical value of** xyz

5 [a] What is the increase of : $7x + 5y + z$ **than** $2x + 6y + z$ **?**

[b] The following table shows the number of hours at studying of Mona during 5 days :

Day	Saturday	Sunday	Monday	Tuesday	Wednesday
Hour	$3\frac{1}{2}$	3	$2\frac{1}{2}$	3	4

Find : 1 The mean of the studying hours. 2 The mode of the studying hours.

7 Alexandria Governorate

El-Gomrok Educational Zone
Maths Supervision

Answer the following questions :

1 Choose the correct answer :

1 If the degree of the algebraic term : x^3y^m is 5 , then m = ...

(a) 1 (b) 2 (c) 3 (d) 5

2 $\mathbb{Z}_+ \cap \mathbb{Z}_-$ = ...

(a) $\mathbb{Z}$ (b) $\mathbb{Z}_+$ (c) $\mathbb{Z}_-$ (d) $\varnothing$

3 If the rational number $\frac{x+4}{x-7} = 0$, then $x =$ .....

(a) 4 (b) 7 (c) – 4 (d) – 7

4 The mean of the values : 2 , 3 , 7 and 8 is .....

(a) 2 (b) 3 (c) 5 (d) 7

5 $\frac{1}{8} - \frac{3}{8} =$ .....

(a) $\frac{1}{8}$ (b) $\frac{3}{8}$ (c) $\frac{-1}{4}$ (d) $\frac{1}{4}$

6 If the order of the median for a set of ordered values is the fifth , then the number of these values is .....

(a) 3 (b) 5 (c) 7 (d) 9

2 Complete each of the following :

1 The additive inverse of the number $\left(\frac{2}{5}\right)^{zero}$ is .....

2 The greatest negative integer is .....

3 $(3x - y)(2x + 5y) = 6x^2 + 13xy -$ .....

4 The mode for the values : 3 , 9 , 12 , 3 , 7 , 8 and 3 is .....

5 If $\{1 , 2 , x\} = \{2 , 5 , 1\}$, then $x =$ .....

3 [a] Use the distribution property to find the following in the simplest form :

$\frac{7}{16} \times \frac{6}{7} - \frac{7}{16} \times \frac{4}{7}$

[b] Factorize by identifying the H.C.F. : $4x^3 - 6x^2 - 8x$

4 [a] Find three rational numbers lying between : $\frac{1}{5}$ **and** $\frac{1}{2}$

[b] Add : $2a^2 + 4b^2 + 5c$ **and** $3a^2 - 2b^2 + c$

5 [a] Find the quotient of : $16x^4y^2 - 32x^3y^3 + 24x^2y^4$ **by** $8x^2y$ where $x \neq 0$, $y \neq 0$

[b] Find the mean and the median for the following values : 7 , 8 , 2 , 4 and 9

Answer the following questions :

1 Choose the correct answer from those given :

1 $ab \times 2a^2b =$ .....

(a) $2a^3b^2$ (b) $-2a^2b$ (c) ab^4 (d) $-3ab$

2 If the mode for the set of values : 7 , 5 , y + 3 , 5 and 7 is 7 , then y = ...

(a) 3 (b) 4 (c) 5 (d) 7

3 The rational number that lies in half way between $\frac{1}{3}$ and $\frac{5}{9}$ is .....

(a) $\frac{2}{3}$ (b) $\frac{3}{4}$ (c) $\frac{4}{9}$ (d) $\frac{5}{27}$

4 If the order of the median of a set of values is the fourth , then the number of these values equals .....

(a) 3 (b) 5 (c) 7 (d) 9

5 If $2x = 10$, then $\frac{3}{5}x =$ .....

(a) 25 (b) 15 (c) 5 (d) 3

6 The algebraic term : $7xy$ is of the ..... degree.

(a) first (b) second (c) third (d) fourth

2 Complete each of the following :

1 $3xy + 6x =$ ..... $(y + 2)$

2 $25\% - \left|\frac{-1}{5}\right| =$ .....

3 $\frac{-4}{11} \times$ ..... $= 1$

4 If the sum of 5 numbers is 30 , then the arithmetic mean for these numbers is .....

5 The number $\frac{4}{x}$ is a rational number if $x \neq$ .....

3 [a] Subtract : $2x + 6y - 7$ from $2x - 5y + 2$

[b] Divide : $14x^3 - 28x^2 + 7x$ by $7x$ where $x \neq$ zero

4 [a] Use the distribution property to find the value of : $\frac{2}{7} \times 9 + \frac{2}{7} \times 6 - \frac{2}{7}$

[b] The length of a rectangle is $(2x + 5)$ cm. and its width is $(3x + 2)$ cm. Calculate its area.

5 [a] Find the median for the values : 3 , 5 , 12 , 11 , 8 , 10

[b] If $x = \frac{-1}{3}$, $y = \frac{3}{4}$, $z = -3$, find in the simplest form the numerical value of each of the following :

1 $yz + \frac{1}{4}$

2 $xy + yz$

Answer the following questions :

1 Choose the correct answer :

1 The median of the values : 9 , 18 , 5 , 7 , 11 is .....

(a) 5 (b) 7 (c) 9 (d) 11

2 If $(x+y)^2 = 15$, $x^2 + y^2 = 7$, then $xy =$ .....

(a) 8 (b) 22 (c) 6 (d) 4

3 The mean of : 3 , 0 , 4 , 6 , 7 is .....

(a) 4 (b) 5 (c) 6 (d) 7

4 The rational number in half way between $\frac{2}{7}$ and $\frac{4}{7}$ is .....

(a) $\frac{5}{14}$ (b) $\frac{3}{7}$ (c) $\frac{5}{7}$ (d) $\frac{4}{14}$

5 The additive identity element in $\mathbb{Q}$ is .....

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

6 The multiplicative inverse of $\frac{5}{8}$ is .....

(a) $-\frac{5}{8}$ (b) $\frac{3}{8}$ (c) $\frac{8}{3}$ (d) $\frac{8}{5}$

2 Complete each of the following :

1 $3x^2y \times$ ..... $= 15x^2y^3$

2 The algebraic term : $-5x^2y^2$ is of the ..... degree.

3 The mode of the values : 7 , 5 , 4 , 5 is .....

4 The number $\frac{x+3}{x-7} \in \mathbb{Q}$ if $x \neq$ .....

5 $(x+3)(3x-2) = 3x^2 +$ ..... $- 6$

3 [a] Use the distribution property to find the value of :

$\frac{8}{13} \times 11 + \frac{8}{13} \times 9 - \frac{8}{13} \times 7$

[b] Add : $2a + 3b - c$ and $3a - 2b - 2c$

4 [a] Find the quotient of : $x^2 - 9x + 20$ by $x - 4$ (where $x \neq 4$)

[b] Factorize by identifying the H.C.F. : $12xy^2 + 18x^2y - 6x^2y^2$

5 [a] Simplify : $(2x+5)(2x-5) + 25$, then find the numerical value of the result when $x = -1$

[b] The following table shows the scores of a class in maths exam :

Marks	5	6	7	8	9	10
Frequency	6	5	13	7	4	2

Find the mode mark.

10 El-Monofia Governorate

Shibon Elkom Directorate
Supervisor of Math

Answer the following questions :

1 Choose the correct answer :

1 The additive identity in the set of integers is .....

(a) zero (b) 1 (c) – 1 (d) 2

2 If the mean of : 4 , 5 , x is 6 , then x = ...

(a) 4 (b) 5 (c) 6 (d) 9

3 The number $\frac{\text{zero}}{-2}$ ..... $\mathbb{N}$

(a) $\in$ (b) $\notin$ (c) $\subset$ (d) $\not\subset$

4 The additive inverse for the expression : $2x - 3y$ is .....

(a) $-2x-3y$ (b) $2x+3y$ (c) $3y-2x$ (d) $-3y+2x$

5 The smallest prime number is .....

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

6 If $\frac{x+4}{x-3}$ is a rational number , then $x \neq$ .....

(a) 3 (b) – 3 (c) 4 (d) – 4

2 Complete each of the following :

1 The number that lies at half the distance between $\frac{1}{2}$, $\frac{3}{4}$ is .....

2 The order of the median for the values : 4 , 12 , 9 , 8 , 2 is .....

3 If the number y + 5 hasn't a multiplicative inverse , then y = ...

4 The remainder of subtraction $2x - 1$ from ..... equals $2x$

5 If the mode for the values : 2 , 4 , k – 3 , is 4 , then k = ...

3 [a] Factorize by identifying the H.C.F. : $10x^3 - 5x^2$

[b] Simplify : $(a-4)^2 + 8(a-2)$

[c] Add : $2x^2 - 5x + 3$, $4x - x^2 - 2$

4 [a] Find three rational numbers between : $\frac{3}{5}$, $\frac{1}{4}$

[b] Use the distribution property to find : $\frac{-5}{2} \times 4 + \frac{-5}{2} \times 3 + \frac{-5}{2}$

[c] If $x = \frac{3}{2}$, $y = \frac{-5}{4}$, find in the simplest form the value of : $x^2 - 2xy$ (Show steps)

5 **[a] Divide :** $x^2 - 5x + 6$ **by** $x - 2$ where $x \neq 2$

[b] Find the mean and the median of : 4 , 6 , 12 , 3 , 9 , 8 (Show steps)

11 El-Dakahlia Governorate Maths Supervision

Answer the following questions :

1 **Choose the correct answer from those given :**

1 If $\frac{5}{x+2}$ is a rational number , then $x \neq$ .....

(a) -2 (b) zero (c) 2 (d) 5

2 $(-3x) \times (-5y) =$ .....

(a) $-15xy$ (b) $-8xy$ (c) $8xy$ (d) $15xy$

3 The mode of the values : 4 , 5 , 4 , 3 , 7 , 5 , 4 is .....

(a) 3 (b) 4 (c) 5 (d) 7

4 The algebraic term : $6x^3y^2$ is of the ..... degree.

(a) third (b) fourth (c) fifth (d) sixth

5 The arithmetic mean for the values : $3 , 5 - x , 7 + x$ is .....

(a) 2 (b) 3 (c) 4 (d) 5

6 If $\frac{2}{5}x = 10$, then $\frac{3}{5}x =$ .....

(a) 25 (b) 20 (c) 15 (d) 5

2 **Complete each of the following :**

1 The multiplicative inverse of the number $\left(\frac{-9}{8}\right)^{zero}$ is .....

2 The number that lies at half way between $\frac{1}{2}$ and $\frac{5}{8}$ is .....

3 If $\triangle + \square = 20$, $\triangle + \triangle + \square = 35$, then $\square =$ .....

4 If the order of the median of a set of values is the fifth , then the number of these values is .....

5 1 , 1 , 2 , 3 , 5 , 8 , ... (in the same pattern)

3 **[a] Simplify :** $(x - 3)(x + 3) + 9$, then calculate its numerical value when $x = 5$

[b] If $x = \frac{1}{2}$, $y = \frac{-2}{3}$, $z = 2$, **find the value of :** $\frac{y - z}{x}$

4 **[a] Use the distribution property to find the value of :** $\frac{7}{12} \times \frac{23}{45} + \frac{17}{12} \times \frac{23}{45} - 2 \times \frac{23}{45}$

[b] **1** **Add :** $5x + 2y - 1$ **and** $2x - 5y + 3$

2 **Factorize by identifying the H.C.F :** $3a(a - 2b) - 6b(a - 2b)$, then find the value of the result when $(a - 2b) = |-\frac{1}{3}|$

5 **[a] Divide :** $2x^2 + 5xy + 2y^2$ **by** $2x + y$ where $2x + y \neq 0$

[b] The following table shows Omar's marks in 6 mathematics examinations :

Month	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.
Mark	41	35	47	37	44	48

Find each of the median mark and the mean mark.

12 Port Said Governorate

Educational Directorate
Math Department

Answer the following questions :

1 **Choose the correct answer :**

1 The additive inverse of the number $\left(\frac{-1}{5}\right)^0$ is .....

(a) 1 (b) – 1 (c) 5 (d) $\frac{1}{5}$

2 The degree of the algebraic expression : $3x^2 + 5xy^2 + 6y^2$ is .....

(a) zero. (b) second. (c) third. (d) fourth.

3 If $\frac{x}{y} = 1$, then $3x - 3y =$ .....

(a) zero (b) 1 (c) 3 (d) 6

4 If the arithmetic mean of six values is 12 , then the sum of these values equals .....

(a) 2 (b) 6 (c) 18 (d) 72

5 The rational number that lies at the midpoint of the distance between $\frac{1}{4}$ and $\frac{1}{3}$ is .....

(a) $\frac{1}{12}$ (b) $\frac{7}{12}$ (c) $\frac{3}{4}$ (d) $\frac{7}{24}$

6 The length of a rectangle is $2x$ cm. , and its width is y cm. , then its perimeter is ..... cm.

(a) $2xy$ (b) $3xy$ (c) $2x + y$ (d) $4x + 2y$

2 **Complete :**

1 The multiplicative inverse of the number $\frac{3}{4}$ is .....

2 The mode of the values : 3 , 3 , 5 , 4 , 4 , 3 is .....

3 $(2x - 3)(4x + 5) = 8x^2 +$ ..... $- 15$

Algebra and Statistics

4 1 , 4 , 9 , 16 , ... , ... (in the same pattern)

5 The number $\frac{5}{x-4}$ is rational if $x \neq$ .....

3 **[a] Use the distribution property to find the value of :** $\frac{5}{17} \times 10 + \frac{5}{17} \times 23 + \frac{5}{17}$

[b] Add : $2a - 3b + 5c$ **and** $3a + b - 5c$

4 **[a] Divide :** $6x^2y^2 + 9x^2y^3$ **by** $6x^2y^2$ $(x \neq 0 , y \neq 0)$

[b] Simplify to the simplest form : $(x+5)^2 + (x+2)(x-2)$

5 **[a] Factorize by identifying the H.C.F. :** $12a^2b + 18a^3b^2$

[b] If the set of ages of pupils in one school is : 7 , 9 , 13 , 6 , 8 , 12 , 10 , 14 , 11 , find the median age of this set.

13 Kafr El-Sheikh Governorate — General Maths Supervision

Answer the following questions :

1 **Complete :**

1 The degree of the algebraic term : $-4xy^2$ is .....

2 $(2x-3)(3x+5) = 6x^2 +$ ..... $-$ .....

3 The arithmetic mean of the values : 2 , 3 , 2 , 6 , 7 is .....

4 The number that lies at half way between $\frac{1}{2}$ and $\frac{5}{8}$ is .....

5 If the mode of the values : 5 , 7 , 4 , a + 1 , 6 and 10 is 4 , then a = ...

2 **Choose the correct answer :**

1 If $\frac{x}{y} = 1$, then $3x - 3y =$ .....

(a) 6 (b) 3 (c) 1 (d) 0

2 The order of the median of the values : 6 , 2 , 5 , 4 , 1 is .....

(a) first. (b) second. (c) third. (d) fourth.

3 The number $\frac{2}{9a}$ is a rational number if a ≠ .....

(a) 2 (b) 0 (c) – 9 (d) 9

4 The remainder of subtracting $-2x$ from $2x$ equals .....

(a) $-4x$ (b) $4x$ (c) 0 (d) – 4

5 If the rational number $\frac{2-x}{x-3} = 0$, then $x =$ .....

(a) 2 (b) – 2 (c) 3 (d) – 3

6 If $(x+3)(x-3) = x^2 + k$, then k = ...

(a) 3 (b) – 3 (c) 9 (d) – 9

3 **[a] Subtract :** $-a^2 - 5ab + 4b^2$ **from** $3a^2 - 2ab + 5b^2$

[b] Use the distribution property to find : $\frac{6}{37} \times 7 + \frac{6}{37} \times 5 + \frac{6}{37} \times (-11)$

[c] Add : $5x + 4xy - 7y$ **and** $3x - 2xy + 5y$

4 **[a] Divide :** $6x^2 + 13x + 6$ **by** $2x + 3$ $\left(\text{where } x \neq -\frac{3}{2}\right)$ (Show steps)

[b] Simplify : $(x+2)^2 - 4x$, then find the numerical value of the result when $x = 1$

5 **[a] Factorize by taking out the H.C.F :** $3x^2y - 6xy^2 + 9xy$

[b] If $x = \frac{5}{9}$, $y = \frac{4}{3}$, $z = \frac{1}{9}$, find in the simplest form the value of $(x+z) \div y$ (Show the steps)

[c] If the arithmetic mean of the values : 8 , 7 , 5 , 6 , 4 , k + 5 is 6 , then find the value of k

14 El-Menia Governorate N.T.S.

Answer the following questions :

1 **Choose the correct answer :**

1 The multiplicative inverse of the number $3\frac{2}{5}$ is .....

(a) $-3\frac{2}{5}$ (b) $3\frac{2}{5}$ (c) $\frac{17}{5}$ (d) $\frac{5}{17}$

2 The quotient of dividing : 2.25 ÷ 1.5 = ...

(a) 1.5 (b) 15 (c) 0.15 (d) 500

3 $(3x+5)(x+2) = 3x^2 +$ ..... $+ 10$

(a) – 7 (b) 11 x (c) 5 x (d) 7 x

4 The number $\frac{x-3}{x+5}$ is a rational number if $x \neq$ .....

(a) 3 (b) – 5 (c) 5 (d) – 3

5 The mode of the values : 3 , 3 , 4 , 4 , 5 , 3 is .....

(a) 4 (b) 22 (c) 5 (d) 3

6 If $\frac{15}{x} = \frac{-3}{4}$, then $x =$ .....

(a) – 20 (b) – 5 (c) 5 (d) 20

2 **Complete each of the following :**

1 $\frac{3}{4}$ + 50 % = $\frac{\text{.....}}{\text{.....}}$

2 The median of the values : 4 , 8 , 3 , 5 , 7 is .....

Algebra and Statistics

3 $6\,b^3 = 2\,b \times$ .....

4 The rational number that hasn't a multiplicative inverse is .....

5 The arithmetic mean of the numbers : 10 , 4 , 7 , 3 , 1 is .....

3 **[a] Use the distribution property to find the value of :** $\frac{5}{17} \times 10 + \frac{5}{17} \times 23 + \frac{5}{17}$

[b] Divide : $6\,x^2\,y^2 + 9\,x^2\,y^3$ **by** $3\,x^2\,y^2$ $(x \neq 0\ ,\ y \neq 0)$

4 **[a] Factorize by taking out the H.C.F. :** $12\,a^2\,b + 18\,a^3\,b^2$

[b] If $a^2 = 25$, $b^2 = 9$ and $a\,b = 15$, **then find the value of :** $(a - b)^2$

5 **[a] Find three rational numbers between :** $\frac{4}{5}$ and $\frac{2}{3}$

[b] Find the mean of the values : 2 , 5 , 3 , 6 , 9

Answer the following questions :

1 **Choose the correct answer :**

1 The expression : $3\,x^2\,y - 6\,x$ its degree is .....

(a) second. (b) first. (c) third. (d) fourth.

2 The arithmetic mean of the numbers : 7 , 13 , 5 and 15 is .....

(a) 12 (b) 10 (c) 20 (d) 7

3 The median of : 4 , 7 , 8 , 6 , 5 is .....

(a) 3 (b) 4 (c) 5 (d) 6

4 The multiplicative inverse of the number 2^0 equals .....

(a) 2 (b) – 1 (c) – 2 (d) 1

5 $(x^2 + x) \div x =$ ..... (where $x \neq 0$)

(a) 0 (b) x (c) $2\,x + 1$ (d) $x + 1$

2 **Complete :**

1 The additive identity element in $\mathbb{Q}$ is .....

2 The sum of : $-3\,x^2\,y + 4\,x\,y^2 - 5$ and $-3\,x\,y^2 + x^2\,y + 5$ is .....

Final Examinations

3 The coefficient of the algebraic term : $4\,x\,y^2\,z$ is .....

4 The highest common factor of the expression : $5\,y^2\,x + 25\,y\,x^2$ is .....

5 If $\frac{x+1}{x-5} \in \mathbb{Q}$, then x .....

3 **[a] Find three rational numbers between :** $\frac{1}{2}$ **and** $\frac{1}{3}$

[b] Divide : $x^2 - 5x + 6$ **by** $x - 3$ (where $x - 3 \neq 0$)

[c] Use the distribution property to find the value of : $\frac{5}{17} \times 8 + \frac{5}{17} \times 10 - \frac{5}{17}$

4 **[a] Find :** $(2x - y)(2x + y)$

[b] Complete : The mode of the values 5 , 7 , 4 , 5 , 3 , 5 is .....

5 **[a] Subtract :** $-2x$ **from** $4x$

[b] Factorize the following expression by identifying the H.C.F : $3x^2 + 15xy$

Final Examinations 2020

on Algebra and Statistics

Some Schools Examinations on Algebra and Statistics

1 Cairo Governorate

Nozha Directorate of Education
Nozha Language Schools

Answer the following questions :

1 Choose the correct answer :

1 The degree of the algebraic term $5x y^2$ is .....

(a) zero (b) 2 (c) 3 (d) 5

2 The number $\frac{x+3}{x-5}$ equals zero if $x =$ .....

(a) -3 (b) 3 (c) 5 (d) -5

3 The multiplicative inverse of $\left(\frac{2}{5}\right)^0$ is .....

(a) 1 (b) -1 (c) $-\frac{2}{5}$ (d) $\frac{-5}{2}$

4 The mode of the numbers : 5 , 8 , 4 , 9 and 8 is .....

(a) 9 (b) 4 (c) 8 (d) 5

5 The H.C.F. of $12x^3 + 6x^2$ is .....

(a) 6 (b) $6x^2$ (c) x^2 (d) $3x^2$

2 Complete :

1 $(x - y)(x + y) =$ .....

2 $(3x + 5)^2 =$ ..... $+ 30x +$ .....

3 The arithmetic mean of the values : 5 , 4 , 8 , 3 , 10 is .....

4 $(3x -$ .....$)^2 =$ ..... $- 12x + 4$

5 The number that lies half way between $\frac{2}{7}$ and $\frac{6}{7}$ is .....

3 [a] 1 Add : $5a - 2b + 4c$ and $4b - 3a + c$

2 Subtract : $2x^2 + 5xy - y^2$ from $(2x + y)^2$

[b] Factorize by using the H.C.F : $4x^2y^3 - 2xy^2 + 6x^3y$

4 [a] Divide : $x^2 - 5x + 6$ by $x - 2$ (where $x \neq 2$)

[b] Use the distribution property to find : $\frac{5}{9} \times 4 + \frac{5}{9} \times 6 - \frac{5}{9}$

5 [a] Simplify : $(x - y)(x + y) - (x - y)^2$, then calculate the numerical value of the result when $x = 2$, $y = -1$

[b] Find the mean and the median of the values : 20 , 15 , 25 , 10 , 30 , 7

2 Cairo Governorate

Rod El-Farag Educational Zone
St. Mary's School

Answer the following questions :

1 Choose the correct answer :

[1] If the arithmetic mean of the numbers : 5 , 8 , 7 , k , 9 , 3 is 6 , then k = ...

(a) 3 (b) 4 (c) 5 (d) 6

[2] The multiplicative inverse of the number $\frac{3}{4}$ is .....

(a) $\frac{4}{3}$ (b) $-\frac{3}{4}$ (c) $-\frac{4}{3}$ (d) 1

[3] If $(x-6)(x+6) = x^2 + k$, then k = ...

(a) – 10 (b) 36 (c) 10 (d) – 36

[4] If the order of the median of a set of values is the fourth, then the number of these values equals .....

(a) 3 (b) 5 (c) 7 (d) 9

[5] The rational number that lies on third of the way between 8 and 12 from the smaller is .....

(a) $8\frac{1}{3}$ (b) 10 (c) $9\frac{1}{3}$ (d) $10\frac{2}{3}$

[6] $|-3|+|-5|$ = ...

(a) 2 (b) – 2 (c) 8 (d) – 8

2 Complete :

[1] The algebraic term $6x y^3$ whose degree is .....

[2] The mode of the values : 3 , 3 , 5 , 4 , 4 , 3 is .....

[3] $(2x-3)(4x+5)$ = ... + ... – .....

[4] 1 , 4 , 9 , 16 , ... , ... (in the same pattern)

[5] The number $\frac{5}{x-4}$ is rational if $x \neq$ .....

3 [a] Subtract : $3x^2 - 5xy + 6y^2$ from $2x^2 - 4xy - 2y^2$

[b] Find the quotient : $2x^3 + 11x^2 + 12x - 9$ by $x + 3$ where $x \neq -3$

4 [a] Find three rational numbers between : $\frac{1}{2}$ and $\frac{2}{3}$

[b] Simplify to the simplest form : $(2x-3)(2x+3) + 7$, and calculate the numerical value of the result when $x = 1$

5 **[a] Use the distribution property to find the value of :** $\frac{7}{9} \times 14 + \frac{7}{9} \times 6 - \frac{7}{9} \times 2$

(without using the calculator)

[b] This table shows a pupil's marks of mathematics in five months :

Month	Oct.	Nov.	Dec.	Feb.	March
Marks	40	30	55	45	35

Find : [1] The arithmetic mean of the marks.

[2] The median of the marks.

3 Cairo Governorate

Maadi Zone
Degla Valley Language School

Answer the following questions :

1 **Choose the correct answer :**

[1] The arithmetic mean of the numbers : 3 , 6 , 1 , 6 is .....

(a) 4 (b) 3 (c) 6 (d) 18

[2] The mode of the values : 4 , 5 , 4 , 3 , 4 is .....

(a) 3 (b) 4 (c) 5 (d) 4.5

[3] The degree of the algebraic expression : $5x^3 + 2x^2 - 7$ is the .....

(a) fifth. (b) third. (c) first. (d) second.

[4] If $\frac{x}{y} = \frac{2}{3}$, then $\frac{3x}{2y}$ = ...

(a) $\frac{1}{5}$ (b) $\frac{3}{2}$ (c) $\frac{9}{4}$ (d) 1

[5] If $\frac{x+3}{x-7} = 0$, then the value of x is .....

(a) 3 (b) – 7 (c) – 3 (d) 7

[6] The median of the values : 2 , 1 , 6 , 5 , 7 is .....

(a) 2 (b) 6 (c) 5 (d) 7

2 **Complete :**

[1] $\frac{3}{4}$ = ... %

[2] $(x - 5)(x + 5)$ = ...

[3] $12x^2y^3 \div 4xy$ = ...

[4] The remainder of subtracting $-7x^2$ from $2x^2$ is .....

[5] The rational number that lies at half the way between : $\frac{1}{4}$ and $\frac{1}{2}$ is .....

3 **[a]** If $x = \frac{3}{4}$, $y = \frac{-5}{2}$, **find in the simplest form the value of :** $(x - y) \div (x + y)$

[b] Add : $3x^2 + 2x - 5$ **and** $2x^2 - 5x + 3$

---

4 **[a] Divide :** $\frac{10x^5 - 6x^3 + 4x^2}{2x^2}$

[b] Use the distribution property to find the value of : $\frac{3}{7} \times \frac{5}{6} + \frac{3}{7} \times \frac{7}{6} - \frac{3}{7}$

[c] Complete : $3x^2 - 6xy = 3x$ (.....)

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5 **[a] Simplify :** $(2a - 3)(2a + 3) + 7$

[b] Write three rational numbers between : $\frac{1}{3}$ and $\frac{5}{6}$

[c] Find the mean of the values : 2 , 5 , 3 , 6 , 9

4 Giza Governorate

Al-Agoza Directorate
Supervision of Math

Answer the following questions :

1 **Choose the correct answer :**

1 If $\frac{3}{x-5}$ is a rational number , then $x \neq$ .....

(a) zero (b) 3 (c) -5 (d) 5

2 The algebraic term $2x^2y$ is of the ..... degree.

(a) first (b) second (c) third (d) fourth

3 If $5a = 45$, $ab = 1$, then $b =$ .....

(a) $\frac{1}{9}$ (b) 5 (c) $\frac{1}{5}$ (d) 9

4 Fifth the number $5^{10} =$ .....

(a) 5^9 (b) 5^5 (c) 5^{11} (d) 3^9

5 The value of the digit 7 in the number 0.4753 is .....

(a) $\frac{7}{10}$ (b) $\frac{7}{100}$ (c) $\frac{7}{1000}$ (d) 7

6 The mode of the values : 5 , 7 , 3 , 5 is .....

(a) 5 (b) 7 (c) 3 (d) 4

---

2 **Complete :**

1 $(2a - 3b)(a + 5b) = 2a^2 +$ ..... $-$ .....

2 If three times a number is 15 , then fifth this number is .....

3 The number which lies at half the distance between : $\frac{1}{2}$ and $\frac{3}{4}$ is .....

4 $5\ a^2$ increases $-3\ a^2$ by .....

5 The median of the values : 4 , 8 , 3 , 5 , 7 is .....

3 **[a] Use the distribution property to get the result of :** $\frac{3}{5} \times 2 + \frac{3}{5} \times 6 - \frac{3}{5} \times 3$

[b] Simplify : $(2x - 3)(2x + 3) + 7$

4 **[a] Find two rational numbers between :** $\frac{1}{3}$ and $\frac{1}{2}$

[b] What is the increase of : $7x + 5y + z$ than $2x + 6y + z$?

5 **[a] Factorize by taking out the H.C.F. :** $18x^2y^3 + 6x^3y^2 - 3x^2y^2$

[b] If the arithmetic mean of the values : 8 , 7 , 5 , 9 , 4 , 3 , k + 4 is 6 , find the value of : k

5 Giza Governorate

Omrania Directorate
El-Sadat Governmental Language School

Answer the following questions :

1 **Choose the correct answer :**

1 The algebraic term $7xy^3$ whose degree is .....

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

2 The remainder of subtracting $3x$ from $5x$ is .....

(a) $2x$ (b) $-2x$ (c) $8x$ (d) $2x^2$

3 The median of the values : 4 , 8 , 3 , 5 and 7 is .....

(a) 3 (b) 4 (c) 5 (d) 7

4 If $\frac{a}{b} = 1$, then $5a - 5b =$ .....

(a) zero (b) 1 (c) 3 (d) 5

5 The mode of the values : 7 , 3 , 7 , 2 and 7 is .....

(a) 3 (b) 7 (c) 2 (d) 5

6 If $\frac{15}{x} = \frac{3}{4}$, then $x =$ .....

(a) 20 (b) -20 (c) 5 (d) -5

2 **Complete each of the following :**

1 The multiplicative inverse of $\frac{-7}{5}$ is .....

2 The additive identity element in $\mathbb{Q}$ is .....

3 The mean of the numbers : 6 , 4 , 1 , 5 and 9 is .....

4 If $\frac{x+3}{x-2} \in \mathbb{Q}$, then $x \neq$ .....

5 The rational number in half way between : $\frac{1}{7}$ and $\frac{5}{7}$ is .....

3 **[a] Add :** $5x^2 - 7xy + 4y^2$ **and** $4x^2 + 5xy - 9y^2$

[b] Use the distribution property to find : $\frac{8}{13} \times 11 + \frac{8}{13} \times 9 + \frac{8}{13} \times 6$

4 **[a] Simplify :** $(x - 5)(x + 5) + 25$ **, then find the value of the result if** $x = 3$

[b] Find three rational numbers between : $\frac{1}{3}$ and $\frac{1}{2}$

5 **[a] Factorize by taking out the H.C.F. :** $27x^3y^2 - 9x^2y^3 + 3xy$

[b] The following table shows the distribution of marks of 20 students in an exam :

Marks	7	8	9	10	Total
No. of students	5	9	4	2	20

Find the mode of these marks.

6 Alexandria Governorate

Middle Educational Zone
Math's Supervision

Answer the following questions :

1 **Complete each of the following :**

1 If $\frac{4}{6} = \frac{12}{x}$, then $x + 2 =$ .....

2 The multiplicative inverse of $-\frac{2}{3}$ is .....

3 $\frac{1}{2} =$ ..... %

4 The rational number in half way between $\frac{3}{5}$ and $\frac{4}{5}$ is .....

5 If $a + 3b = 7$, and $c = 3$, then the numerical value of : $a + 3(b + c)$ is .....

6 The arithmetic mean of the set of values : 2 , 3 , 8 , 2 , 5 equals .....

2 **Choose the correct answer :**

1 $0.0635 \simeq$ ..... to the nearest hundredth.

(a) 0.63 (b) 0.07 (c) 0.06 (d) 0.063

2 $0.7 + 0.\dot{3} =$ .....

(a) 1 (b) 3.7 (c) $0.\dot{3}7$ (d) $1\frac{1}{30}$

3 If the order of the median of a set of values is the fourteenth , then the number of these values equals .....

(a) 27 (b) 15 (c) 7 (d) 28

4 $(4x-3)(x-4) =$ .....

(a) $4x^2-19x-12$ (b) $4x^2-7$ (c) $4x^2-12$ (d) $4x^2-19x+12$

5 The mode of the values : 3 , 3 , 4 , 4 , 5 , 3 is .....

(a) 4 (b) 22 (c) 5 (d) 3

3 **[a] Multiply : $(2x+y)(x+2y)$, then find the numerical value at : $x=2$, $y=1$**

[b] Use the distribution property to find : $\frac{7}{12}\times\frac{23}{45}+\frac{17}{12}\times\frac{23}{45}-2\times\frac{23}{45}$

4 **[a] Divide : $x^3y-4xy^2+6xy+x^2y^2$ by xy**

[b] Find three rational numbers between : $\frac{4}{5}$ and $\frac{2}{3}$

5 **[a] Subtract : $5x^2+y^2-3xy$ from $x^2-2xy+3y^2$**

[b] The following table shows the marks of Alaa in maths tests in 6 months :

Month	Oct.	Nov.	Dec.	Feb.	March	April
Mark	41	35	47	37	44	48

Find : 1 The median for the previous marks. 2 The mean for the previous marks.

7 Alexandria Governorate

El-Montaza Educational Zone
Math's Supervision

Answer the following questions :

1 Choose the correct answer :

1 The additive inverse of the number $\left(\frac{-1}{5}\right)^0$ is .....

(a) 1 (b) -1 (c) 5 (d) $\frac{1}{5}$

2 The degree of the algebraic expression : $3x^2+5xy^2+6y^2$ is .....

(a) zero (b) second (c) third (d) fourth

3 If $\frac{x}{y}=1$, then $3x-3y=$ .....

(a) zero (b) 1 (c) 3 (d) 6

4 If the arithmetic mean of six values is 12 , then the sum of these values equals .....

(a) 2 (b) 6 (c) 18 (d) 72

5 The rational number that lies at the midpoint of the distance between $\frac{1}{4}$ and $\frac{1}{3}$ is .....

(a) $\frac{1}{12}$ (b) $\frac{7}{12}$ (c) $\frac{3}{4}$ (d) $\frac{7}{24}$

6 The length of a rectangle is $2x$ cm. and its width is y cm. , then its perimeter = ...

(a) $2xy$ (b) $3xy$ (c) $2x+y$ (d) $4x+2y$

2 Complete :

1. $2x^3 \times 3xy =$ .....
2. $2\frac{1}{5} \times$ ..... $= 1$
3. The remainder of subtracting $(-3x)$ from $(2x)$ is .....
4. If the mode of the values : 7 , 5 , a + 3 , 5 , 7 is 7 , then a = ...
5. The median of the values : 5 , 9 , 7 , 4 , 3 , 8 is .....

---

3 [a] Use the distribution property to find the value of : $\frac{5}{17} \times 10 + \frac{5}{17} \times 23 + \frac{5}{17}$

[b] Add : $2a - 3b + 5c$ **and** $3a + b - 5c$

[c] Divide : $6x^2y^2 + 9x^2y^3$ **by** $6x^2y^2$ $(x \neq 0 , y \neq 0)$

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4 [a] If $a + b = \frac{5}{4}$ and $b + c = \frac{3}{4}$ **, find the value of :** $a + 2b + c$

[b] From : $5x^2 + 4x - 3$ **subtract :** $4x^2 - 5x + 3$

[c] Simplify : $(x - 1)^2 + (x + 3)(x - 3)$

---

5 [a] Factorize : $12a^2b + 18a^3b^2$

[b] If $a^2 = 25$, $b^2 = 9$ and $ab = 15$ **, then find the value of :** $(a - b)^2$

[c] If the arithmetic mean of the values : 3 , 5 and $x + 2$ is 4 **, then find the arithmetic mean of the two values :** $5 - x$, $5 + 2x$

[d] If the set of ages of pupils in one school is as follows :
$\{7 , 9 , 13 , 6 , 8 , 12 , 10 , 14 , 11\}$, find the median age of this set.

8 El-Kalyoubia Governorate

Directorate of Education
Math Supervision

Answer the following questions :

1 Choose the correct answer :

1. $|-5| - |2| =$ .....

(a) 3 (b) – 7 (c) 10 (d) – 3

2. If the arithmetic mean for the numbers 3 , 5 , x is 4 , then $x =$ .....

(a) 3 (b) 4 (c) 5 (d) 6

3. The remainder of subtracting $9x$ from $7x$ equals .....

(a) $2x$ (b) $-2x$ (c) $16x$ (d) – 2

4. If 6 , 5 , 12 and x are proportional numbers , then $x =$ .....

(a) 8 (b) 10 (c) 5 (d) 7

5 The algebraic term $3x^2y$ is of the ..... degree.

(a) third (b) fourth (c) fifth (d) sixth

6 If the mode of the values : $7, 5, x+4, 5, 7$ is 5 , then $x =$ .....

(a) 1 (b) 4 (c) 5 (d) 7

2 Complete each of the following :

1 $5x^2 + 15xy = 5x($..... + ...$)$

2 12 % of 500 kg. = ... kg.

3 The median of the values : 4 , 8 , 3 , 5 , 7 is .....

4 The rational number which hasn't a multiplicative inverse is .....

5 The rational number that lies one third of the way between 8 and 12 from the smaller number is .....

3 [a] Find three rational numbers that lie between : $\frac{1}{2}$ and $\frac{1}{3}$

[b] Simplify to the simplest form : $(x+5)^2 + (x+2)(x-2)$

4 [a] 1 Subtract : $5x^2 + y^2 - 3xy - 1$ from $6x^2 - 2xy + 3y^2$

2 Divide : $x^2 - 5x + 6$ by $x - 3$ (where $x \neq 3$)

[b] If $a = \frac{3}{4}$, $b = -\frac{5}{2}$ **, find in the simplest form the numerical value of :** $\frac{a+b}{a-b}$

5 [a] The length of a rectangle is $4x$ cm. and its width is $3x$ cm. calculate its area.

[b] The following table shows Gehad's marks in mathematics exam in 6 months :

Month	October	November	December	February	March	April
Mark	20	25	42	27	40	50

Find the arithmetic mean of the marks.

Answer the following questions :

1 Complete each of the following :

1 $\frac{3}{4} + 50\% =$ $\frac{\text{.....}}{\text{.....}}$

2 $\frac{4}{5} =$ ..... %

3 The additive inverse of the number $|-\frac{2}{3}|$ is .....

4 The most repeated value of a set of values is called .....

5 The smallest natural number is .....

6 If the arithmetic mean of the values : 8 , x , 7 , 5 is 6 , then x = ...

2 Choose the correct answer :

1 The number $\frac{5}{3}$ > .....

(a) $\frac{10}{3}$ (b) $\frac{25}{9}$ (c) $\frac{10}{6}$ (d) $\frac{3}{5}$

2 If 3 a = 27 and a b = 1 , then b = ...

(a) $\frac{1}{9}$ (b) $\frac{1}{5}$ (c) 5 (d) 9

3 The coefficient of the algebraic term $-5x^2y$ is .....

(a) 5 (b) – 5 (c) 3 (d) – 3

4 The median of the values : 11 , 18 , 7 , 10 , 21 is .....

(a) 10 (b) 11 (c) 7 (d) 21

5 The H.C.F. of : $10x^2 + 5x$ is .....

(a) $2x$ (b) $5x$ (c) 5 (d) x

3 [a] Add : $2a - 3b + 5c$ and $3a + b - 5c$

[b] Divide : $x^2 + 6x + 5$ by $x + 5$ (where $x \neq -5$)

4 [a] Use the property of distribution to find the value of :

$$\frac{6}{37} \times 7 + \frac{6}{37} \times 5 + \frac{6}{37} \times (-11)$$

[b] Factorize by identifying the H.C.F. : $27x^4 - 18x^3$

5 [a] Add : $2x + y + 5$ and $3x + 2y - 1$

[b] 1 Find the mode of : 2 , 4 , 7 , 4 , 5

2 Find the median of : 4 , 8 , 3 , 5 , 7

10 El-Dakahlia Governorate

Math's Supervision

Answer the following questions :

1 Choose the correct answer :

1 If $a \times \frac{b}{3} = \frac{a}{3}$, then b = ...

(a) $\frac{a}{3}$ (b) 0 (c) a (d) 1

2 If the mode of the values : 7 , 5 , y + 3 , 5 and 7 is 7 , then y = ...

(a) 3 (b) 4 (c) 5 (d) 7

3 The algebraic term $2^2 x^3 y^2$ is of the ..... degree.

(a) third (b) fourth (c) fifth (d) seventh

4 $(15 x^4 + 5 x^3) \div 5 x^3$ = ...

(a) $3 x^2 + x$ (b) $5 x^2 + 1$ (c) $3 x + 1$ (d) $4 x^4$

5 The rational number that lies in half way between $\frac{1}{3}$ and $\frac{5}{9}$ is .....

(a) $\frac{2}{3}$ (b) $\frac{3}{4}$ (c) $\frac{4}{9}$ (d) $\frac{5}{27}$

6 The additive inverse of the number $\left(\frac{1}{2}\right)^{\text{zero}}$ is .....

(a) 2 (b) – 1 (c) 1 (d) – 2

2 Complete each of the following :

1 The order of the median for the values : 4 , 8 , 7 , 5 , 3 is .....

2 0.18 – 30 % = ...

3 If $(2 x + y)^2 = 4 x^2 + k x y + y^2$, then k = ...

4 If $\frac{5}{a+2}$ is a rational number , then a ≠ .....

5 The arithmetic mean for the values : 18 , 35 , 24 , 7 is .....

3 [a] Use the distribution property to find the value of :

$$\frac{7}{12} \times \frac{23}{45} + \frac{17}{12} \times \frac{23}{45} - 2 \times \frac{23}{45}$$

[b] Subtract : $(- x^2 - 4 x + 7)$ from $(3 x^2 - 4 x - 2)$

4 [a] Factorize by identifying the H.C.F. : 3 a (4 a + 5 b) – 2 b (4 a + 5 b)

[b] Find three rational numbers between : $\frac{4}{5}$ and $\frac{2}{3}$

5 [a] Simplify to the simplest form : (y – 3) (y + 3) + 9

[b] The following table shows a student's marks of mathematics in 6 months :

Month	Oct.	Nov.	Dec.	Feb.	March	April
Mark	41	35	47	37	44	48

Find : 1 The median for the previous marks.

2 The mean for the previous marks.

11 Suez Governorate

Directorate of Education
Mathematics Inspectorate

Answer the following questions :

1 Choose the correct answer :

1 The multiplicative inverse of $\left(\frac{1}{2}\right)^0$ is .....

(a) 2 (b) – 2 (c) 1 (d) – 1

2 The degree of the algebraic term $6\,x^3\,y^2$ is ..... degree.

(a) third (b) fourth (c) fifth (d) sixth

3 $2\,a\,b^2 \div$ zero = ...

(a) undefined. (b) zero. (c) a b (d) $2\,a\,b^2$

4 If the mode of the values : 7 , 5 , $x+4$, 5 , 7 is 5 , then x = ...

(a) 7 (b) 4 (c) 5 (d) 1

5 If $\frac{5}{x+2}$ is a rational number , then $x \neq$ .....

(a) – 2 (b) 0 (c) 2 (d) 5

6 The number that lies half way between $\frac{1}{3}$ and $\frac{5}{9}$ is .....

(a) $\frac{2}{3}$ (b) $\frac{3}{4}$ (c) $\frac{4}{9}$ (d) $\frac{5}{27}$

2 Complete :

1 $2\frac{1}{5} \times$ ..... = 1

2 If the order of the median of the values is fourteenth , then the number of these values is .....

3 The result of subtracting $-7x$ from $2x$ is .....

4 $(2x-3)(x+5) = 2x^2 +$ ..... – 15

5 The arithmetic mean of the values : 1 , 6 , 8 , 4 , 6 is .....

3 [a] By using the distribution property , find the value of : $\frac{3}{7} \times 2 + \frac{3}{7} \times 6 - \frac{3}{7}$

[b] Find three rational numbers between : $\frac{1}{2}$ and $\frac{1}{3}$

4 [a] Find the quotient : $2x^2 + 13x + 15$ **by** $x+5$

[b] Simplify to its simplest form : $(x+3)(x-3)+9$, then find the numerical value at $x = 5$

5 [a] What is the increase of : $7x + 5y + 2$ than $2x + 6y + 7$?

[b] Factorize by taking out the H.C.F : $12\,a^2\,b + 18\,a^3\,b^2$

12 Port Said Governorate

East Educational Administration
Math Orientation

Answer the following questions :

1 Complete each of the following :

1 $24\,x^4\,y^6 = 6\,x^2\,y^3 \times$ .....

2 The remainder of subtracting $-3\,x$ from $2\,x$ is .....

3 1 , 1 , 2 , 3 , 5 , 8 , ... (in the same pattern).

4 If the mode of the values : 7 , 5 , a + 3 , 5 , 7 is 7 , then a = ...

5 $5\,x^2 + 15\,x\,y = 5\,x$ (..... + ...)

---

2 Choose the correct answer from those given :

1 The algebraic term $8\,x^3\,y^2$ is of the ..... degree.

(a) third (b) fourth (c) fifth (d) sixth

2 The rational number that lies in half way between $\frac{1}{3}$ and $\frac{5}{9}$ is .....

(a) $\frac{2}{3}$ (b) $\frac{3}{4}$ (c) $\frac{4}{9}$ (d) $\frac{5}{27}$

3 The multiplicative inverse of the number $\left(\frac{1}{2}\right)^{\text{zero}}$ is .....

(a) 2 (b) -2 (c) 1 (d) -1

4 If $\frac{5}{x+2}$ is a rational number , then $x \neq$ .....

(a) -2 (b) zero (c) 2 (d) 5

5 The median of the values : 5 , 4 , 7 is .....

(a) 4 (b) 5 (c) 7 (d) 16

6 If the arithmetic mean for the set of values : 3 , 5 , $x + 2$ is 4 , then the arithmetic mean for the two values : $5 - x$, $5 + 2\,x$ is .....

(a) 6 (b) 4 (c) 3 (d) 2

---

3 [a] Use the distribution property to find the value of : $\frac{3}{7} \times 2 + \frac{3}{7} \times 6 - \frac{3}{7}$

[b] Find three rational numbers that lie between : $\frac{1}{2}$ and $\frac{1}{3}$

---

4 [a] What is the increase of : $7\,x + 5\,y + z$ **than** $2\,x + 6\,y + z$ **?**

[b] Divide : $14\,x^2\,y - 35\,x\,y^2 + 7\,x\,y$ **by** $7\,x\,y$, $x \neq$ zero , $y \neq$ zero

---

5 [a] Simplify to the simplest form : $(x - 3)(x + 3) + 9$

[b] The following table shows Gehad's marks of mathematics in 6 months :

Month	October	November	December	February	March	April
Mark	30	35	42	37	44	50

Find the arithmetic mean of the marks.

13 Kafr El-Sheikh Governorate

Mathematics Inspectorate
Language Schools

Answer the following questions :

1 Choose the correct answer :

1 The median of the values : 7 , 3 , 4 , 5 , 2 is .....

(a) 7 (b) 5 (c) 4 (d) 3

2 The rational number $\frac{x-7}{x+3}$ = zero , when .....

(a) $x = -3$ (b) $x = 7$ (c) $x \neq 3$ (d) $x \neq 7$

3 The quotient of dividing $2.25 \div 1.5$ = ...

(a) 1.5 (b) 15 (c) 0.15 (d) 500

4 The arithmetic mean of the numbers : 3 , 9 , 1 , 7 is .....

(a) 20 (b) 5 (c) 4 (d) 3

5 $(x^2 + x) \div x$ = ...

(a) zero (b) x (c) $2x + 1$ (d) $x + 1$

6 $\left|\frac{-5}{3}\right|$ ..... zero.

(a) < (b) = (c) > (d) ≤

2 Complete :

1 $6b^3 = 2b \times$ .....

2 The mode of the values : 7 , 5 , a + 4 , 5 , 7 is 7 , then a = ...

3 The additive inverse of $\left[4 \times \left(-1\ \frac{1}{4}\right)\right]$ is .....

4 The degree of the algebraic term : $3^2 x^2 y^2$ is .....

5 The rational number that hasn't a multiplicative inverse is .....

3 [a] Subtract : $5x^2 + y^2 - 3xy$ from $x^2 - 2xy + 3y^2$

[b] Use the distribution property to find : $\frac{5}{7} \times 5 + \frac{5}{7} \times 10 - \frac{5}{7}$

[c] Simplify : $(2x + 3)(2x - 3) + 7$

4 **[a] If $x = \frac{3}{4}$, $y = -\frac{5}{2}$, find the numerical value of :** $(x - y) \div (x + y)$

[b] Divide : $6x^2 - xy - 15y^2$ **by** $2x + 3y$ **where** $(2x + 3y) \neq 0$

[c] Add : $3a^2 + 2a + 5$ **and** $2a^2 - 5a + 3$

---

5 **[a] Factorize by identifying the H.C.F. :** $12xy^3 + 18xy^2$

[b] Find four rational numbers between : zero and $\frac{1}{2}$

[c] The following table shows Gehad's marks of mathematics in 6 months :

Months	October	November	December	February	March	April
Marks	31	35	42	36	46	50

Find : [1] The arithmetic mean. [2] The median.

14 El-Menia Governorate

Meghagha Educational Directorate
St. Mark & El Tewfik Schools

Answer the following questions :

1 **Choose the correct answer :**

[1] The number $\frac{x-3}{x+5}$ is a rational number if $x \neq$ .....

(a) 3 (b) – 5 (c) 5 (d) – 3

[2] The mode of the values : 3 , 3 , 4 , 4 , 5 , 3 is .....

(a) 4 (b) 22 (c) 5 (d) 3

[3] $\frac{3y}{5} - \frac{y}{5} =$ .....

(a) $\frac{2}{5}$ (b) $\frac{y}{5}$ (c) $\frac{2y}{5}$ (d) 2 y

[4] The algebraic expression : $x^3 - 3x^2 + 4$ is of the ..... degree.

(a) 1^{st} (b) 2^{nd} (c) 3^{rd} (d) 4^{th}

[5] If $\frac{15}{x} = \frac{-3}{4}$, then $x =$ .....

(a) – 20 (b) – 5 (c) 5 (d) 20

[6] $(x + y)(x - y) =$ .....

(a) $2x$ (b) $(x - y)^2$ (c) x^2 (d) $x^2 - y^2$

---

2 **Complete the following :**

[1] The mean of the numbers : 10 , 4 , 7 , 3 , 1 is .....

[2] If $(x - y)(3x + 2y) = 3x^2 + kxy - 2y^2$, then k = ...

3 The coefficient of the algebraic term $(-5\,x\,y^2)$ is .....

4 The rational number which hasn't a multiplicative inverse is .....

5 If the order of the median of a set of values is fourth , then the number of these values is .....

3 **[a] Find three rational numbers lying between :** $\frac{1}{3}$ **and** $\frac{1}{2}$

[b] Simplify : $(2x+3)^2 - 12x$ **, then find the numerical value of the result at** $x = -2$

4 **[a] Using the distribution property, find the value of :** $\frac{3}{7} \times 10 + \frac{3}{7} \times 5 - \frac{3}{7}$

[b] Divide : $(x^2 + 6x + 5)$ **by** $(x+5)$ **where** $(x \neq -5)$

5 **[a] Factorize by taking out the H.C.F. :** $3\,m^4\,n^2 - 6\,m^3\,n^3 + 9\,m^2\,n^4$

[b] Subtract : $(-x^2 - 4x + 7)$ **from** $(x^2 - 4x - 2)$

[c] Find k if the arithmetic mean of the values : 27 , 8 , 16 , 24 , 6 , k is 14

Answer the following questions :

1 **Choose the correct answer :**

1 The algebraic term $6\,x^3\,y$ is of the ..... degree.

(a) first (b) fourth (c) sixth (d) fifth

2 The mode of the values : $7 , 5 , x+4 , 5 , 7$ is 5 , then $x =$ .....

(a) 1 (b) 4 (c) 5 (d) 7

3 If the rational number $\frac{x-2}{x+3} = 0$, then the value of $x =$ .....

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

4 The multiplicative inverse of the number $3\frac{2}{5}$ is .....

(a) $-3\frac{2}{5}$ (b) $3\frac{2}{5}$ (c) $\frac{17}{5}$ (d) $\frac{5}{17}$

5 Subtracting $-2x$ from $3x$ equals .....

(a) x (b) $-5x$ (c) $5x$ (d) $-6x^2$

6 $(3x+5)(x+2) = 3x^2 +$ ..... $+ 10$

(a) -7 (b) $11x$ (c) $5x$ (d) $7x$

2 Complete :

1. $5x^3y^3 \times \ldots\ldots\ldots = 15x^4y^5$
2. If $\frac{x}{y} = 1$, then $5x - 5y = \ldots\ldots\ldots$
3. $1\frac{2}{5} \times \ldots\ldots\ldots = 1$
4. The number that lies at half way between $\frac{1}{4}$ and $\frac{5}{8}$ is .....
5. The median for the values : 4 , 8 , 3 , 5 , 7 is .....

---

3 [a] Add : $3x - 2y + 5$ and $x + 2y - 2$

[b] Find three rational numbers that lie between : $\frac{1}{4}$ and $\frac{1}{2}$

---

4 [a] Use the distribution property to calculate :

$$\frac{7}{12} \times \frac{23}{45} + \frac{17}{12} \times \frac{23}{45} - 2 \times \frac{23}{45}$$

[b] Divide : $21x^2y - 7xy + 35xy^3$ by $7xy$

---

5 [a] What is the increase of : $8x + 4y + 3z$ than $2x + 6y - z$?

[b] Simplify to the simplest form : $(5x - 2)^2 - (5x - 2)(5x + 2) + 7$

[c] The following table shows Habiba's marks of mathematics in 6 months :

The month	Oct.	Nov.	Dec.	Feb.	March.	April
The mark	41	35	47	37	44	48

Find the arithmetic mean of the marks.