Class - VI

Mathematics

Ch - 12 (Fundamental Concepts of Algebra)

Ex - 12 (A)

1. i) x increased by 23

$\Rightarrow (x + 23)$ (Answer)

iv) x taken away from 20

$\Rightarrow 20 - x$ (Answer)

v) Four times x decreased by five times y.

$\Rightarrow 4 \times x - 5 \times y$

$= (4x - 5y)$ (Answer)

vii) Product of a and b subtracted from their sum

$\Rightarrow (a+b) - a \times b$

$= (a+b) - ab$ (Answer).

viii) Quotient of a by 3 multiplied by the sum of b &

$\Rightarrow \frac{a}{3} \times (b+3)$

2. i) $\Rightarrow x = 14 + 5$ or $\boxed{x - 14 = 5}$

iv) $\Rightarrow \frac{1}{3}(x+4) = 10$

vii) 7) 2P

iv) Three times x is 12 less than twice y.

$\Rightarrow$ $\boxed{2y - 3x = 12}$

3. ii) $r \times r \times r \times r \times r \times r = r^6 = r^6$

iv) $3 \times 5 \times p \times p \times p \times q \times q \times r = 15 p^3 q^2 r$

4. ii) $3a^2b^3c^4 = 3 \times a \times a \times b \times b \times b \times c \times c \times c \times c$

iii) $2p^3q^3r^3 = 2 \times p \times p \times p \times q \times q \times q \times r \times r \times r$

(Answer)

—— ○ ——

Ex-12 (B)

1. ii) $a + 2b - 3c$

All the terms are:- a; $2b$; $-3c$

v) $2p^2 - 3pq + q^2 - 1$

All the terms are:- $2p^2$; $-3pq$; q^2 and -1

vi) $3x^2 - 5x + \frac{2}{x} - \frac{3}{x^2}$

All the terms are:- $3x^2$; $-5x$; $\frac{2}{x}$; $-\frac{3}{x^2}$

viii) $2xy + 3yz - 5zx + \frac{1}{9}$

All the terms are:- $2xy$; $3yz$; $-5zx$; $\frac{1}{9}$

2. ii) $5x$ = Monomial

iii) $\frac{5}{x}$ = Monomial

v) $a+b+c$ = Trinomial

vii) $x^2 + x - \frac{1}{2}$ = Trinomial

viii) $3x + \frac{y}{2}$ = Binomial

3. i) Co-efficient of a in $-5ab^2 = -5b^2$

iv) " " " x in $\frac{1}{3}xy = \frac{1}{3}y$

v) " " " xz in $-3xyz = -3y$

vii) " " " y^2 in $-6axy^2 = -6ax$

ix) " " " x^2y in $8abx^2yz = 8abz$.

3 in $3xyz$

4. ii) $-3xyz^2$; Numerical co-efficient $= -3$
Literal " " $= xyz^2$

iv) $-\frac{7}{2}pqr$; Numerical co-efficient $= -\frac{7}{2}$
Literal " " $= pqr$

v) $-a^3b^2c$; Numerical co-efficient $= -1$
Literal " " $= a^3b^2c$

5. i) Factors of $3a = 3, a, 3a$

iii) Factors of $ab = a, b, ab$

6. i) $5x, -6y, \frac{3}{5}x, -y, \frac{5}{7}y, x, -\frac{1}{2}y$

Like terms = $\left(5x, \frac{3}{5}x, x\right)$ and $\left(-6y, -y, \frac{5}{7}y, -\frac{1}{2}y\right)$

ii) $xy^2, -3x^2y, 5y^2x, \frac{2}{3}yx^2, -\frac{3}{5}xy^2$

Like Terms = $\left(xy^2, 5y^2x, -\frac{3}{5}xy^2\right)$ and $\left(-3x^2y, \frac{2}{3}yx^2\right)$

7. iv) $5xy$ and $6any$ are Unlike Terms = True

vii) 6 and $6p$ are like Terms = False

ix) $-yx$ and $2yx$ are like Terms = True.

x) The co-efficient of y in $-5xy$ is -5 = False.

Ex-12(c)

1) i) $4x^3 - 3x^2 + 5x - 2 \Rightarrow$ It is a polynomial.
Degree = 3

iv) $x^3 + x^2 - x + \frac{1}{x} + 5$

$= x^3 + x^2 - x + x^{-1} + 5 \Rightarrow$ Not a polynomial.
as in the term $\frac{1}{x}$ power of varia is negative.

v) $x^6 - 1 \Rightarrow$ Polynomial. Degree = 6

vii) $z - \frac{1}{z} + 3$

$= z - z^{-1} + 3 \Rightarrow$ Not a polynomial.
As in $\frac{1}{z}$ power of z is negative.

ix) $z^2 - \frac{1}{8} \Rightarrow$ Polynomial. Degree = 2

2. i) $2 + x + 3x^2 \Rightarrow$ Degree = 2

iii) $6 - 5x + 2x^3 \Rightarrow$ Degree = 3

v) $y - y^3 \Rightarrow$ Degree = 3

vi) $z - z^2 + 3z^5 \Rightarrow$ Degree = 5

viii) $3 + 2p + p^2 - 6p^4 \Rightarrow$ Degree = 4

3. i) $m^2 + n^2 - mn \Rightarrow$ Polynomial; Degree = 2

iii) $y^2 + z^2 - \frac{2}{y} + 3z \Rightarrow$ not a polynomial.
as in $\frac{2}{y}$ power of y is negative

v) $a^2b + ab^2 - 3ab \Rightarrow$ Polynomial; Degree = 3

vi) $x^2 + \frac{1}{x^2} + 4 \Rightarrow$ Not a polynomial.
$= x^2 + x^{-2} + 4$ as in $\frac{1}{x^2}$ power of x is negative

viii) $x + \frac{1}{x} \Rightarrow$ Not a polynomial
$= x + x^{-1}$ as in $\frac{1}{x}$ power of x is negative.

4. ii) $xy + yz + zx \Rightarrow$ Degree = 2

iii) $x^2 + xyz \Rightarrow$ Degree = 3

v) $p^2q^2 + 2pq^2 - p^2q + 1 \Rightarrow$ Degree = 4

vi) $m^2n^3 + mn^2 + n^4 \Rightarrow$ Degree = 5

5. ii) $\frac{2}{3} + \frac{3}{5}x^2 + x^3$ is not a polynomial $\Rightarrow$ False

iv) $xy - yz + zx$ is a polynomial in x, y, z
of degree 2. $\Rightarrow$ True.

vi) $mn - m/n + 5$ is a polynomial in m and n $\Rightarrow$ False

Ch-24 (Data Handling)

Ex-24

1. ii) Arrange in ascending order :-

5·7, 9·2, 3·1, 4·6, 1·8, 10·4, 2·5, 0·9, 1·2

Solution:- In ascending order :-

0·9, 1·2, 1·8, 2·5, 3·1, 4·6, 5·7, 9·2, 10·4.

(Answer)

2. ii) Arrange in descending order :- 2·3, 4·6, 1·2, 0·4, 3·5, 9·7, 6·1, 4·8, 0·8, 1·0

Solution :-

In descending order :-

9·7, 6·1, 4·8, 4·6, 3·5, 2·3, 1·2, 1·0, 0·8, 0·4.

(Answer).

3. The number of children in 30 families of a colony are given :-

1, 2, 0, 3, 3, 2, 2, 1, 1, 1, 0, 0, 2, 3, 4, 1, 2, 3, 3, 0, 4, 2, 2, 3, 3, 1, 1, 2, 2, 3

Represent the above data in the form of frequency table.

Solution :-

Number of Children	Tally marks	Number of families (Frequency)
0	||||	4
1	𝍸 ||	7
2	𝍸 ||||	9
3	𝍸 |||	8
4	||	2

5. Construct a frequency table for the following.
3, 2, 1, 3, 5, 4, 3, 2, 2, 1, 1, 2, 1, 3, 5, 2, 2, 3, 1, 4, 5, 2, 3

Solution:-

Observation	Tally marks	Frequency
1	𝍸	5
2	𝍸 ||	7
3	𝍸 |	6
4	||	2
5	|||	3

6. Construct a frequency table for the following.
6, 7, 8, 7, 5, 10, 9, 8, 8, 7, 6, 7, 10, 8, 9, 7, 7, 6, 5, 6, 8, 7

Solution:-

Observations	Tally marks	Frequency
5	||	2
6	||||	4
7	𝍸 ||	7
8	𝍸	5
9	||	2
10	||	2