HW
16/7/21

Ch-18 - Fundamental Concepts

Ex-18(B)

1) $6, 4y, -3x, \frac{5}{4}, \frac{4}{5}xy, az, 7p, 0, \frac{9x}{y}, \frac{3}{4-x}, \frac{x-xz}{3y}$

ans)

Constants	Variables
6	$4y, az, \frac{3}{4-x}$
$\frac{5}{4}$	$-3x, 7p, \frac{x-xz}{-3y}$
0	$\frac{4}{5}xy, \frac{9x}{y}$

2) i) $4x, -3y, -x, \frac{2}{3}x, \frac{4}{5}y$ and y.

ans) $4x, -x, \frac{2}{3}x$ and $-3y, \frac{4}{5}y, y$

ii) $\frac{2}{3}xy, -4yx, 2yz, -\frac{2}{3}yz, \frac{zy}{3}$ and yx.

ans) $\frac{2}{3}xy, -4yx, yx$ and $2yz, -\frac{2}{3}yz, \frac{zy}{3}$

iii) $-ab^2, b^2a^2, 7b^2a, -3a^2b^2$ and $2ab^2$

ans) $-ab^2, 7b^2a, 2ab^2$ and $b^2a^2, -3a^2b^2$

iv) $5ax, -5by, \frac{by}{7}, 7xa$ and $\frac{2ax}{3}$.

ans) $5ax, 7xa, \frac{2ax}{3}$ and $-5by, \frac{by}{7}$

3) i) 16 is a constant and y is a variable, but 16y is variable

ans) True

ii) $5x$ has two terms 5 and x.

ans) False

iii) The expression $5+x$ has two terms 5 and x.

ans) True

iv) The expression $2x^2+x$ is a trinomial.

ans) False

v) $ax^2 + bx + c$ is a trinomial.
ans) True

vi) $8 \times ab$ is a binomial.
ans) False

vii) $8 + ab$ is a binomial.
ans) True

viii) $x^3 - 5xy + 6x + 7$ is a polynomial.
ans) True

ix) $x^3 - 5xy + 6x + 7$ is a multinomial.
ans) True

x) The coefficient of x in $5x$ is $5x$.
ans) False

xi) The coefficient of ab in $-ab$ is -1.
ans) True

xii) The coefficient of y in $-3xy$ is -3.
ans) False.

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Q1 7 ans) No. of terms in this expression = 2

ii) $3 \times x + a$
ans) No. of terms in this expression = 2

iii) $3x - x$
ans) No. of terms in this expression = 2.

iv) $a \div x \times b + c$
ans) No. of terms in this expression = 2.

v) $3x \div 2 + y + 4$
ans) No. of terms in this expression = 3.

vi) $xy \div 2$
ans) No. of terms in this expression = 1.

vii) $x + y \div a$
ans) No. of terms in this expression = 2.

viii) $2x + y + 8 \div y$
ans) No. of terms in this expression = 3.

ix) $2 \times a + 3 \div b + 4$
ans) No. of terms in this expression = 3.

5) i) xy and $-yx$ are like terms.
ans) True

ii) x^2y and $-y^2x$ are like terms.
ans) False

iii) a and $-a$ are like terms.
ans) True

iv) $-ba$ and $2ab$ are unlike terms.
ans) False

v) 5 and $5x$ are like terms.
ans) False

vi) $3xy$ and $4xyz$ are unlike terms.
ans) True

6) i) xy
ans) Monomial

ii) $xy + x$
ans) Binomial

iii) $2x \div y$
ans) Monomial

iv) $-a$
ans) Monomial

v) $ax^2 - x + 5$
ans) Trinomial

vi) $-3be + d$
ans) Binomial

vii) $1 + x + y$
ans) Trinomial

viii) $1 + x \div y$
ans) Binomial

ix) $x + xy - y^2$
ans) Trinomial

7) i) x
ans) Coefficient of x in $x = 1$

ii) $-x$
ans) Coefficient of x in $-x = -1$.

iii) $-3x$
ans) Coefficient of x in $-3x = -3$

iv) $-5ax$
ans) Coefficient of x in $-5ax = -5a$

v) $\frac{3}{2}xy$
ans) Coefficient of x in $\frac{3}{2}xy = \frac{3}{2}y$

vi) $\frac{ax}{y}$
ans) Coefficient of x in $\frac{ax}{y} = \frac{a}{y}$

8) i) x in $-3xy^2$
ans) Coefficient of x in $-3xy^2 = -3y^2$

ii) x in $-ax$
ans) Coefficient of x in $-ax = -a$

iii) y in $-y$
ans) Coefficient of y in $-y = -1$

iv) y in $\frac{2}{a}y$
ans) Coefficient of y in $\frac{2}{a}y = \frac{2}{a}$

v) xy in $-2xyz$
ans) Coefficient of xy in $-2xyz = -2z$

vi) ax in $-axy^2$
ans) Coefficient of ax in $-axy^2 = -y^2$

8) iii) x^2y in $-3ax^2y$
ans) Coefficient of x^2y in $-3ax^2y = \frac{-3ax^2y}{-3a}$

viii) xy^2 in $5axy^2$
ans) Coefficient of xy^2 in $5axy^2 = 5a$

9) i) $5xy$
ans) Numerical coefficient $= 5$.

ii) abc
ans) Numerical coefficient $= 1$

iii) $5pqr$
ans) Numerical coefficient $= 5$

iv) $-2x$
ans) Numerical coefficient $= -2$

v) $\frac{2}{3}xy^2$
ans) Numerical coefficient $= \frac{2}{3}$

vi) $\frac{-15xy}{z^2}$
ans) Numerical coefficient $= \frac{-15}{2}$

vii) $-7x \div y$
ans) Numerical coefficient $= -7$.

viii) $-3x \div (2y)$
ans) $3x \div (2y)$
$= \frac{3x}{2y}$
$=$ Numerical coefficient $= \frac{-3}{2}$

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10) i) $x + x^2$

ans) As degree of polynomial = the greatest exponent of the various terms.
The greatest exponent = 2 ∴ Degree of polynomial = 2

ii) $5x^2 - 7x + 2$

ans) As degree of polynomial = the greatest exponent of various terms. The greatest exponent = 2
∴ Degree of polynomial = 2

iii) $x^3 - x^8 + x^{10}$

ans) As degree of polynomial = the greatest exponent of various terms.
The greatest exponent = 10 ∴ Degree of polynomial = 10.

iv) $1 - 100x^{20}$

ans) As degree of polynomial = the greatest exponent/power of various terms. The greatest exponent = 20 ∴ Degree of polynomial = 20.

v) $4 + 4x - 4x^3$

ans) As degree of polynomial = the greatest exponent/power of various terms. The greatest exponent = 3 ∴ Degree of polynomial = 3

vi) $8x^2y = 3y^2 + x^2y^5$

ans) Sum of powers of term $8x^2y = 2 + 1 = 3$
Sum of powers of term $3y^2 = 2$
Sum of powers of term $x^2y^5 = 2 + 5 = 7$
Greatest power = 7 ∴ Degree of polynomial = 7

vii) $8z^3 - 8y^2z^3 + 7yz^5$

ans) Sum of powers of the term $8z^3 = 3$

Sum of powers of the term $8y^2z^3 = 2+3=5$

Sum of powers of the term $7yz^5 = 1+5=6$

Greatest power $= 6$ ∴ Degree of polynomial $= 6$

viii) $4y^2 - 3x^3 + y^2x^7$

ans) Sum of powers of the term $4y^2 = 2$

Sum of powers of the term $3x^3 = 3$

Sum of powers of the term $y^2x^7 = 2+7=9$

Greeatest power $= 9$ ∴ Degree of polynomial $= 9$