



SHIKSHA CLASSES

Sub. : Maths
Std. : VIIIth - S.B.

Answer Paper 10. Division of Polynomials

Marks : 20

Q.1 : A) Select the most appropriate Alternative. 02

1) $(-36x^4) \div 4x = ?$

Ans : b) $-9x^3$

2) $(64y^2 - 4) \div (4y - 1) = ?$

Ans : b) $16y + 4$

: B) Solve the following. 01

1) Divide : $-26x^4 \div (-13x)$

Ans : We have,

$$\begin{aligned} & -26x^4 \div (-13x) \\ &= \frac{-26x^4}{-13x} \\ &= 2x^3, \text{ It is required answer.} \end{aligned}$$

Q.2 : A) Solve any one of the following. (Activity) 02

1) Fill in the blanks in the following examples.

Ans : i) $2(2a + 3a) = \boxed{10a}$

ii) $3p \times p^3 = \boxed{3p^4}$

2) Activity : Degree of a polynomial - The highest index of a variable in the given polynomial is called the degree of the polynomial.

Ans : Ex. i) $x^3 - 3x^2 + 5x + 1$, The degree of the polynomial is $\boxed{3}$

ii) $2 - 3x + 7x^2$, The degree of the polynomial is $\boxed{2}$

iii) $2y - 3$, The degree of the polynomial is $\boxed{1}$

iv) 7, The degree of the polynomial is $\boxed{0}$

: B) Solve any one of the following. 02

1) Divide : $40a^3 \div (-10a)$

$$\begin{array}{r} \text{Ans :} \\ -10a \overline{) 40a^3} \\ \underline{-40a^3} \\ 0 \end{array}$$

\therefore Quotient = -4^2 ; Remainder = 0.

2) Divide : $(5x^3 - 3x^2) \div x^2$

$$\begin{array}{r} \text{Ans :} \\ x^2 \overline{) 5x^3 - 3x^2} \\ \underline{-5x^3} \\ 0 - 3x^2 \\ \underline{-3x^2} \\ + \\ 0 \end{array}$$

\therefore Quotient = $5x - 3$; Remainder = 0

Q.3 : A) Solve any one of the following. (Activity) 03

1) Fill in the blanks.

Ans : i) $5m^2 \times 3m^2 = \boxed{15m^4}$

ii) $(2x + 5y) \times \frac{3}{x} = \boxed{6 + \frac{15y}{x}}$

iii) $(3x^2 + 4y) \times (2x + 3y)$
 $= \boxed{6x^3 + 9x^2y + 8xy + 12y^2}$

Thus, Quotient = $6x^2 + 5x + 9$;

Remainder = $10x$

Q.5 : Solve any one of the following. 03

1) Divide : $(a^4 - b^4) \div (a - b)$ (Hint : Use factorisation)

Ans : We have,

$$\begin{aligned}a^4 - b^4 &= (a^2)^2 - (b^2)^2 \\ &= (a^2 - b^2)(a^2 + b^2)\end{aligned}$$

$$[\because x^2 - y^2 = (x + y)(x - y)]$$

$$\therefore a^4 - b^4 = (a - b)(a + b)(a^2 + b^2) \text{ ----(1)}$$

$$\therefore (a^4 - b^4) \div (a - b)$$

$$= \frac{a^4 - b^4}{a - b}$$

$$= \frac{(a - b)(a + b)(a^2 + b^2)}{(a - b)} \text{ (from (1))}$$

$$= (a + b)(a^2 + b^2)$$

2) If $12x^3 - 8x^2 - 6x + 10 = (3x - 2)(4x^2 - 2) + R$, then find R.

Ans : Dividing $12x^3 - 8x^2 - 6x + 10$
by $3x - 2$

$$\begin{array}{r}4x^2 - 2 \\ 3x - 2 \overline{) 12x^3 - 8x^2 - 6x + 10} \\ \underline{12x^3 - 8x^2} \\ - - 6x + 10 \\ \underline{- 6x + 4} \\ + \\ \underline{ 6} \\ \\ \end{array}$$

Now,

$$\begin{aligned}12x^3 - 8x^2 - 6x + 10 \\ = (3x - 2)(4x^2 - 2) + 6\end{aligned}$$

$$[\because \text{Dividend} = \text{Divisor} \times \text{Quotient} \\ + \text{Remainder}]$$

Hence, R = 6.

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