

General instructions for Students: Whatever be the notes provided, everything must be copied in the Mathematics copy and then do the HOMEWORK in the same copy.

CLASS – VIII

MATHEMATICS

ALGEBRAIC EXPRESSIONS AND IDENTITIES

EXERCISE – 10.3

4. Simplify : (ii) $(x + 3)(x - 3)(x + 4)(x - 4)$

$$\begin{aligned} \text{Solution: } (x + 3)(x - 3)(x + 4)(x - 4) &= \{(x + 3)(x - 3)\} \{(x + 4)(x - 4)\} \\ &= (x^2 - 3x + 3x - 9)(x^2 - 4x + 4x - 16) \\ &= (x^2 - 9)(x^2 - 16) \\ &= x^4 - 16x^2 - 9x^2 + 144 = x^4 - 25x^2 + 144 \quad \text{Ans.} \end{aligned}$$

(v) $(p + q)(r + s) + (p - q)(r - s) - 2(pr + qs)$

$$\begin{aligned} \text{Solution: } (p + q)(r + s) + (p - q)(r - s) - 2(pr + qs) \\ &= pr + ps + qr + qs + pr - ps - qr + qs - 2(pr + qs) \\ &= 2pr + 2qs - 2pr - 2qs = 0 \quad \text{Ans.} \end{aligned}$$

HOMEWORK EXERCISE – 10.3 QUESTION NUMBERS : 4 (iii), (iv)

DIVISION OF ALGEBRAIC EXPRESSIONS

EXERCISE – 10.4

Division of a monomial by a monomial

1. (ii) Divide : $-\frac{3}{4}a^2b^3$ by $\frac{6}{7}a^3b^2$

$$\text{Solution: } -\frac{3}{4}a^2b^3 \div \frac{6}{7}a^3b^2 = \frac{-\frac{3}{4}a^2b^3}{\frac{6}{7}a^3b^2} = \left(-\frac{3}{4}\right) \times \left(\frac{7}{6}\right) \times a^{2-3}b^{3-2} = -\frac{7}{8}a^{-1}b^1 = -\frac{7b}{8a} \quad \text{Ans.}$$

Division of a polynomial by a monomial

2. (i) Divide : $9x^4 - 8x^3 - 12x + 3$ by $3x$

$$\begin{aligned} \text{Solution: } 9x^4 - 8x^3 - 12x + 3 \div 3x &= \frac{9x^4 - 8x^3 - 12x + 3}{3x} \\ &= \frac{9x^4}{3x} - \frac{8x^3}{3x} - \frac{12x}{3x} + \frac{3}{3x} \\ &= 3x^3 - \frac{8}{3}x^2 - 4x + \frac{1}{x} \quad \text{Ans.} \end{aligned}$$

Division of a polynomial by a polynomial

3. (ii) Divide : $1 + y^3$ by $1 + y$

Solution:

$$\begin{array}{r}
 y^2 - y + 1 \\
 \hline
 y + 1 \overline{) y^3 + 1} \\
 \underline{y^3 \quad + y^2} \\
 (-) \quad (-) \\
 - y^2 + 1 \\
 - y^2 - y \\
 (+) \quad (+) \\
 \hline
 y + 1 \\
 y + 1 \\
 (-) \quad (-) \\
 \hline
 0
 \end{array}$$

step: I $y + 1$

$$\begin{array}{r}
 y^2 \\
 \hline
 y^3 + y^2
 \end{array}$$

step: II $y + 1$

$$\begin{array}{r}
 (-y) \\
 \hline
 - y^2 - y
 \end{array}$$

step : III $y + 1$

$$\begin{array}{r}
 1 \\
 \hline
 y + 1
 \end{array}$$

Quotient : $y^2 - y + 1$ and Remainder : 0 *Ans*

5 (i) Divide : $a^3 + 2a^2 + 2a + 1$ by $a^2 + a + 1$

Solution:

$$\begin{array}{r}
 a + 1 \\
 \hline
 a^2 + a + 1 \overline{) a^3 + 2a^2 + 2a + 1} \\
 \underline{a^3 + a^2 + a} \\
 (-) \quad (-) \quad (-) \\
 a^2 + a + 1 \\
 a^2 + a + 1 \\
 (-) \quad (-) \quad (-) \\
 \hline
 0
 \end{array}$$

step: I $a^2 + a + 1$

$$\begin{array}{r}
 a \\
 \hline
 a^3 + a^2 + a
 \end{array}$$

step: II $a^2 + a + 1$

$$\begin{array}{r}
 1 \\
 \hline
 a^2 + a + 1
 \end{array}$$

Quotient : $a + 1$ and Remainder : 0 *Ans*

HOMEWORK

EXERCISE 10.4 QUESTION NUMBERS : 1 (i), 3 (i), (iii); 4 (i) and 5 (ii)