

Ex 1.1

Q5 (i) $3x^2(4x+2) + 5x^2(2x-5)$

$$12x^3 + 6x^2 + 10x^3 - 25x^2$$

$$22x^3 - 19x^2$$

(ii) $x^3(x-2) + 4x^3(2x-6)$

$$x^4 - 2x^3 + 8x^4 - 24x^3$$

$$9x^4 - 26x^3$$

(iii) $x(x^3 + 4x^2 - 7x) + 3x^2(2x^2 - 3x + 4)$

$$x^4 + 4x^3 - 7x^2 + 6x^4 - 9x^3 + 12x^2$$

$$7x^4 - 5x^3 + 5x^2$$

(iv) $3x(x^2 - 7x + 1) + 2x^2(6x - 5)$

$$3x^3 - 21x^2 + 3x + 12x^3 - 10x^2$$

$$15x^3 - 31x^2 + 3x$$

Q6 (vii) $(x-2)(x+2) \Rightarrow x^2 - 4$

(viii) $(2x+5)(2x-5) \Rightarrow 4x^2 - 25$

(ix) $(ax-by)(ax+by) \Rightarrow a^2x^2 - b^2y^2$

● Q7 (iv) $(a+b)^2 \Rightarrow a^2 + 2ab + b^2$

(v) $(x-y)^2 \Rightarrow x^2 - 2xy + y^2$

(vi) $(a+2b)^2 \Rightarrow a^2 + 4ab + 4b^2$

(vii) $(3x-y)^2 \Rightarrow 9x^2 - 6xy + y^2$

(viii) $(x-5y)^2 \Rightarrow x^2 - 10xy + 25y^2$

(ix) $(2x+3y)^2 \Rightarrow 4x^2 + 12xy + 9y^2$

✗ Q8 (i) $(x + \frac{1}{2})^2 \Rightarrow x^2 + x + \frac{1}{4}$

(ii) $8(x - \frac{1}{4})^2 \Rightarrow 8(x^2 - \frac{1}{2}x + \frac{1}{16})$
 $\Rightarrow 8x^2 - 4x + \frac{1}{2}$

(iii) $-(1-x)^2 \Rightarrow -[1 - 2x + x^2]$
 $\Rightarrow -1 + 2x - x^2$
 $\Rightarrow -x^2 + 2x - 1$

Q90

$$\frac{25x^2 + tx + 4}{(5x+2)^2} \Rightarrow 25x^2 + 20x + 4$$
$$\Rightarrow t = 20$$

✗ Q11

$$\frac{px^2 + 4x + 1}{(\sqrt{p}x + 1)^2} \Rightarrow px^2 + 2\sqrt{p}x + 1$$
$$2\sqrt{p} = 4 \Rightarrow \sqrt{p} = 2$$
$$p = 4$$

Q12

$$9x^2 + 24x + 5$$

$$(3x + \sqrt{s})^2 \Rightarrow 9x^2 + 6x\sqrt{s} + s$$

$$\Rightarrow 6\sqrt{s} = 24$$

$$\sqrt{s} = 4$$

$$s = 16.$$

Q16

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

$$6x^3 - 4x^2 + 8x - 9x^2 + 6x - 12$$

$$6x^3 - 13x^2 + 14x - 12.$$

coeff of x is 14.

Q17

$$(x+3)(x-4)(2x+1)$$

$$(x^2-4x+3x-12)(2x+1)$$

$$(x^2-x-12)(2x+1)$$

$$2x^3 + x^2 - 2x^2 - x - 24x - 12$$

$$2x^3 - x^2 - 25x - 12.$$

Q18

$$(x^2-3x-2)(2x^2-4x+1)$$

$$2x^4 - 4x^3 + x^2 - 6x^3 + 12x^2 - 3x - 4x^2 + 8x - 2$$

$$2x^4 - 10x^3 + 9x^2 + 5x - 2$$

Q19

$$(3x^2+5x-1)(2x^2-6x-5)$$

$$6x^4 - 18x^3 - 15x^2 + 10x^3 - 30x^2 - 25x - 2x^2 + 6x + 5$$

$$6x^4 - 8x^3 - 47x^2 - 19x + 5$$

coeff of x^2 is -47

$$\text{Q20 (i)} \quad \frac{3x+6}{3} \Rightarrow x+2$$

$$\text{(ii)} \quad \frac{x^2+2x}{x} \Rightarrow x+2$$

$$\text{(iii)} \quad \frac{3x^3-6x^2}{3x} \Rightarrow x^2-2x$$

$$\text{(iv)} \quad \frac{15x^2y-10xy^2}{5xy} \Rightarrow 3x-2y$$

$$\text{Q21 (i)} \quad \frac{6x^2y+9xy^2-3xy}{3xy} \Rightarrow 2x+3y-1$$

$$\text{(ii)} \quad \frac{6x^4-9x^3+12x^2}{3x^2} \Rightarrow 2x^2-3x+4$$

$$\text{Q22 (i)} \quad \frac{12a^2b}{3ab} \Rightarrow 4a$$

$$\text{(ii)} \quad \frac{12a^2bc}{3ac} \Rightarrow 4ab$$

$$\text{(iii)} \quad \frac{4xy^2z}{2xy} \Rightarrow 2yz$$

$$\text{(iv)} \quad \frac{xy}{x} \times \frac{x^2}{6x^2} \Rightarrow \frac{y}{x}$$

Q23

$$(i) \frac{2x^2 + 5x - 3}{2x - 1} \Rightarrow \frac{(2x - 1)(x + 3)}{2x - 1} = x + 3$$

$$(ii) \frac{2x^2 - 2x - 12}{x - 3} \Rightarrow \frac{(2x + 4)(x - 3)}{x - 3} = 2x + 4$$

$$(iii) \frac{8x^2 + 8x - 6}{4x - 2} \Rightarrow \frac{2(4x^2 + 4x - 3)}{2(2x - 1)} \Rightarrow \frac{2(2x - 1)(2x + 3)}{2(2x - 1)}$$

$$\Rightarrow 2x + 3$$

Q24 (i)

$$\begin{array}{r} x^2 - 7x + 12 \\ x - 1 \overline{) x^3 - 8x^2 + 19x - 12} \\ \underline{-x^3 + x^2} \\ -7x^2 + 19x \\ \underline{+7x^2 - 7x} \\ 12x - 12 \\ \underline{-12x + 12} \\ 0 \end{array}$$

Ans: $x^2 - 7x + 12$

(ii)

$$\begin{array}{r} x^2 - 1 \\ 2x - 1 \overline{) 2x^3 - x^2 - 2x + 1} \\ \underline{-2x^3 + x^2} \\ -2x + 1 \\ \underline{+2x - 1} \\ 0 \end{array}$$

Ans: $x^2 - 1$

(iii)

$$\begin{array}{r} x^2 - 1 \\ 3x - 4 \overline{) 3x^3 - 4x^2 - 3x + 4} \\ \underline{-3x^3 + 4x^2} \\ -3x + 4 \\ \underline{+3x - 4} \\ 0 \end{array}$$

Ans: $x^2 - 1$

(iv)

$$\begin{array}{r} 4x^2 + 5x - 6 \\ x - 3 \overline{) 4x^3 - 7x^2 - 21x + 18} \\ \underline{-4x^3 + 12x^2} \\ 5x^2 - 21x \\ \underline{-5x^2 + 15x} \\ -6x + 18 \\ \underline{+6x - 18} \\ 0 \end{array}$$

Ans: $4x^2 + 5x - 6$

(v)

$$\begin{array}{r} x^2 - 5x + 3 \\ x + 5 \overline{) x^3 - 22x + 15} \\ \underline{-x^3 + 5x^2} \\ -5x^2 - 22x \\ \underline{+5x^2 - 25x} \\ -3x + 15 \\ \underline{+3x - 15} \\ 0 \end{array}$$

Ans: $x^2 - 5x + 3$

(vi)

$$\begin{array}{r} 2x^2 + 3x + 6 \\ x-2 \overline{) 2x^3 - x^2 + 0x - 12} \\ \underline{-2x^3 - 4x^2} \\ 3x^2 + 0x \\ \underline{-3x^2 - 6x} \\ 6x - 12 \\ \underline{-6x - 12} \\ - 24 \end{array}$$

Ans: $2x^2 + 3x + 6$

Q25 (i)

$$\begin{array}{r} x-2 \\ x^2+2 \overline{) x^3 - 2x^2 + 2x - 4} \\ \underline{-x^3 + 2x} \\ -2x^2 + 4 \\ \underline{+2x^2 - 4} \\ 0 \end{array}$$

Ans: $x-2$

(ii)

$$\begin{array}{r} x-3 \\ x^2-6x+9 \overline{) x^3 - 9x^2 + 27x - 27} \\ \underline{-x^3 + 6x^2 - 9x} \\ -3x^2 + 18x - 27 \\ \underline{+3x^2 - 18x + 27} \\ 0 \end{array}$$

Ans: $x-3$

(iii)

$$\begin{array}{r} 3x - 1 \\ x^2 + x - 2 \overline{) 3x^3 + 2x^2 - 7x + 2} \\ \underline{3x^3 + 3x^2 - 6x} \\ -x^2 - x + 2 \\ \underline{+x^2 + x - 2} \\ 0 \end{array}$$

Ans: $3x - 1$

(iv)

$$\begin{array}{r} x + 2 \\ 5x^2 + 4x - 1 \overline{) 5x^3 + 14x^2 + 7x - 2} \\ \underline{5x^3 + 4x^2 + x} \\ 10x^2 + 8x - 2 \\ \underline{-10x^2 + 8x - 2} \\ 0 \end{array}$$

Ans: $x + 2$

Q26 (i)

$$\begin{array}{r} x^2 + 2x + 4 \\ x - 2 \overline{) x^3 - 8} \\ \underline{-x^3 + 2x^2} \\ 2x^2 - 8 \\ \underline{-2x^2 + 4x} \\ 4x - 8 \\ \underline{-4x + 8} \\ 0 \end{array}$$

Ans: $x^2 + 2x + 4$

(ii)

$$\begin{array}{r} 4x^2 + 6xy + 9y^2 \\ 2x - 3y \overline{) 8x^3 - 27y^3} \\ \underline{-8x^3 + 12x^2y} \\ 12x^2y - 27y^3 \\ \underline{-12x^2y + 18xy^2} \\ 18xy^2 - 27y^3 \\ \underline{-18xy^2 + 27y^3} \\ 0 \end{array}$$

Ans: $4x^2 + 6xy + 9y^2$

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