



NCERT solutions for class-8 maths chapter-14 factorisation Ex-14.3

**Q1. Carry out the following divisions:**

**(i)**  $28x^4 \div 56x$

**(ii)**  $-36y^3 \div 9y^2$

**(iii)**  $66pq^2r^3 \div 11qr^2$

**(iv)**  $34x^3y^3z^3 \div 51xy^2z^3$

**(v)**  $12a^8b^8 \div (-6a^6b^4)$

**Ans. (i)**  $28x^4 \div 56x = \frac{28x^4}{56x}$

$$= \frac{28}{56} \times \frac{x^4}{x}$$

$$= \frac{1}{2} x^3 \left[ \because x^m \div x^n = x^{m-n} \right]$$

**(ii)**  $-36y^3 \div 9y^2 = \frac{-36y^3}{9y^2}$

$$= \frac{-36}{9} \times \frac{y^3}{y^2}$$

$$= -4y \left[ \because x^m \div x^n = x^{m-n} \right]$$

**(iii)**  $66pq^2r^3 \div 11qr^2$

$$= \frac{66pq^2r^3}{11qr^2}$$

$$= \frac{66}{11} \times \frac{pq^2r^3}{qr^2}$$

$$= 6pqr \left[ \because x^m \div x^n = x^{m-n} \right]$$

$$\text{(iv)} \quad 34x^3y^3z^3 \div 51xy^2z^3$$

$$= \frac{34x^3y^3z^3}{51xy^2z^3}$$

$$= \frac{34}{51} \times \frac{x^3y^3z^3}{xy^2z^3}$$

$$= \frac{2}{3}x^2y \left[ \because x^m \div x^n = x^{m-n} \right]$$

$$\text{(v)} \quad 12a^8b^8 \div (-6a^6b^4)$$

$$= \frac{12a^8b^8}{-6a^6b^4}$$

$$= \frac{12}{-6} \times \frac{a^8b^8}{a^6b^4}$$

$$= -2a^2b^4 \left[ \because x^m \div x^n = x^{m-n} \right]$$

**Q2.** Divide the given polynomial by the given monomial:

$$\text{(i)} \quad (5x^2 - 6x) \div 3x$$

$$\text{(ii)} \quad (3y^8 - 4y^6 + 5y^4) \div y^4$$

$$\text{(iii)} \quad 8(x^3y^2z^2 + x^2y^3z^2 + x^2y^2z^3) \div 4x^2y^2z^2$$

$$\text{(iv)} \quad (x^3 + 2x^2 + 3x) \div 2x$$

$$\text{(v)} \quad (p^3q^6 - p^6q^3) \div p^3q^3$$

$$\text{Ans. (i)} \quad (5x^2 - 6x) \div 3x$$

$$= \frac{5x^2 - 6x}{3x}$$

$$= \frac{5x^2}{3x} - \frac{6x}{3x} = \frac{5}{3}x - 2 = \frac{1}{3}(5x - 6)$$

$$\text{(ii)} \quad (3y^8 - 4y^6 + 5y^4) \div y^4$$

$$= \frac{3y^8 - 4y^6 + 5y^4}{y^4}$$

$$= \frac{3y^8}{y^4} - \frac{4y^6}{y^4} + \frac{5y^4}{y^4} = 3y^4 - 4y^2 + 5$$

$$\text{(iii)} \quad 8(x^3y^2z^2 + x^2y^3z^2 + x^2y^2z^3) \div 4x^2y^2z^2$$

$$= \frac{8(x^3y^2z^2 + x^2y^3z^2 + x^2y^2z^3)}{4x^2y^2z^2}$$

$$= \frac{8x^3y^2z^2}{4x^2y^2z^2} + \frac{8x^2y^3z^2}{4x^2y^2z^2} + \frac{8x^2y^2z^3}{4x^2y^2z^2}$$

$$= 2x + 2y + 2z$$

$$= 2(x + y + z)$$

$$\text{(iv)} (x^3 + 2x^2 + 3x) \div 2x$$

$$= \frac{x^3 + 2x^2 + 3x}{2x}$$

$$= \frac{x^3}{2x} + \frac{2x^2}{2x} + \frac{3x}{2x} = \frac{x^2}{2} + \frac{2x}{2} + \frac{3}{2}$$

$$= \frac{1}{2}(x^2 + 2x + 3)$$

$$\text{(v)} (p^3q^6 - p^6q^3) \div p^3q^3$$

$$= \frac{p^3q^6 - p^6q^3}{p^3q^3}$$

$$= \frac{p^3q^6}{p^3q^3} - \frac{p^6q^3}{p^3q^3} = q^3 - p^3$$

**Q3.** Work out the following divisions:

$$\text{(i)} (10x - 25) \div 5$$

$$\text{(ii)} (10x - 25) \div (2x - 5)$$

$$\text{(iii)} 10y(6y + 21) \div 5(2y + 7)$$

$$\text{(iv)} 9x^2y^2(3z - 24) \div 27xy(z - 8)$$

$$\text{(v)} 96abc(3a - 12)(5b - 30) \div 144(a - 4)(b - 6)$$

$$\text{Ans. (i)} (10x - 25) \div 5 = \frac{10x - 25}{5}$$

$$= \frac{5(2x-5)}{5} = 2x-5$$

$$\text{(ii)} \quad (10x-25) \div (2x-5) = \frac{10x-25}{(2x-5)}$$

$$= \frac{5(2x-5)}{(2x-5)} = 5$$

$$\text{(iii)} \quad 10y(6y+21) \div 5(2y+7)$$

$$= \frac{10y(6y+21)}{5(2y+7)}$$

$$= \frac{2 \times 5 \times y \times 3(2y+7)}{5(2y+7)} = 2 \times y \times 3 = 6y$$

$$\text{(iv)} \quad 9x^2y^2(3z-24) \div 27xy(z-8)$$

$$= \frac{9x^2y^2(3z-24)}{27xy(z-8)}$$

$$= \frac{9}{27} \times \frac{xy \times xy \times 3(z-8)}{xy(z-8)} = xy$$

$$\text{(v)} \quad 96abc(3a-12)(5b-30) \div 144(a-4)(b-6)$$

$$= \frac{96abc(3a-12)(5b-30)}{144(a-4)(b-6)}$$

$$= \frac{12 \times 4 \times 2 \times abc \times 3(a-4) \times 5(b-6)}{12 \times 4 \times 3(a-4)(b-6)}$$

$$= 10abc$$


---

**Q4.** Divide as directed:

**(i)**  $5(2x+1)(3x+5) \div (2x+1)$

**(ii)**  $26xy(x+5)(y-4) \div 13x(y-4)$

**(iii)**  $52pqr(p+q)(q+r)(r+p)$

$\div 104pq(q+r)(r+p)$

**(iv)**  $20(y+4)(y^2+5y+3) \div 5(y+4)$

**(v)**  $x(x+1)(x+2)(x+3) \div x(x+1)$

**Ans. (i)**  $5(2x+1)(3x+5) \div (2x+1)$

$$= \frac{5(2x+1)(3x+5)}{(2x+1)}$$

$$= 5(3x+5)$$

**(ii)**  $26xy(x+5)(y-4) \div 13x(y-4)$

$$26xy(x+5)(y-4) \div 13x(y-4)$$

$$= \frac{26xy(x+5)(y-4)}{13x(y-4)}$$

$$= \frac{13 \times 2 \times xy(x+5)(y-4)}{13x(y-4)} = 2y(x+5)$$

**(iii)**

$$\begin{aligned}& 52pqr(p+q)(q+r)(r+p) \\& \div 104pq(q+r)(r+p) \\&= \frac{52pqr(p+q)(q+r)(r+p)}{52 \times 2 \times pq(q+r)(r+p)} \\&= \frac{1}{2}r(p+q)\end{aligned}$$

**(iv)**

$$\begin{aligned}& 20(y+4)(y^2+5y+3) \div 5(y+4) \\&= \frac{20(y+4)(y^2+5y+3)}{5(y+4)} \\&= 4(y^2+5y+3)\end{aligned}$$

**(v)**

$$\begin{aligned}& x(x+1)(x+2)(x+3) \div x(x+1) \\&= \frac{x(x+1)(x+2)(x+3)}{x(x+1)} \\&= (x+2)(x+3)\end{aligned}$$

**Q5.** Factorize the expressions and divide them as directed:

**(i)**  $(y^2 + 7y + 10) \div (y + 5)$

**(ii)**  $(m^2 - 14m - 32) \div (m + 2)$

**(iii)**  $(5p^2 - 25p + 20) \div (p - 1)$

**(iv)**  $4yz(z^2 + 6z - 16) \div 2y(z + 8)$

**(v)**  $5pq(p^2 - q^2) \div 2p(p + q)$

**(vi)**  $12xy(9x^2 - 16y^2) \div 4xy(3x + 4y)$

**(vii)**  $39y^3(50y^2 - 98) \div 26y^2(5y + 7)$

**Ans. (i)**  $(y^2 + 7y + 10) \div (y + 5)$

$$= \frac{y^2 + 7y + 10}{(y + 5)}$$

$$= \frac{y^2 + (2 + 5)y + 2 \times 5}{(y + 5)}$$

$$= \frac{y^2 + 2y + 5y + 2 \times 5}{(y + 5)}$$

$$= \frac{(y + 2)(y + 5)}{(y + 5)}$$

$$[\because x^2 + (a + b)x + ab = (x + a)(x + b)]$$

$$= y + 2$$



$$\text{(ii)} \quad (m^2 - 14m + 32) \div (m + 2)$$

$$= \frac{m^2 - 14m + 32}{(m + 2)}$$

$$= \frac{m^2 + (-16 + 2)m + (-16) \times 2}{(m + 2)}$$

$$= \frac{(m - 16)(m + 2)}{(m + 2)}$$

$$[\because x^2 + (a + b)x + ab = (x + a)(x + b)]$$

$$= (m + 2)$$

$$\text{(iii)} \quad (5p^2 - 25p + 20) \div (p - 1)$$

$$= \frac{5p^2 - 25p + 20}{(p - 1)}$$

$$= \frac{5p^2 - 20p - 5p + 20}{(p - 1)}$$

$$= \frac{5p(p - 4) - 5(p - 4)}{(p - 1)}$$

$$= \frac{(5p - 5)(p - 4)}{(p - 1)} = \frac{5(p - 1)(p - 4)}{(p - 1)}$$

$$= 5(p - 4)$$

$$\text{(iv)} \quad 4yz(z^2 + 6z - 16) \div 2y(z + 8)$$

$$\begin{aligned}
&= \frac{4yz(z^2 + 6z - 16)}{2y(z + 8)} \\
&= \frac{4yz[z^2 + (8 - 2)z + 8 \times (-2)]}{2y(z + 8)} \\
&= \frac{4yz(z - 2)(z + 8)}{2y(z + 8)} \\
&\quad [\because x^2 + (a + b)x + ab = (x + a)(x + b)] \\
&= 2z(z - 2)
\end{aligned}$$

$$\text{(v)} \quad 5pq(p^2 - q^2) \div 2p(p + q)$$

$$\begin{aligned}
&= \frac{5pq(p^2 - q^2)}{2p(p + q)} \\
&= \frac{5pq(p - q)(p + q)}{2p(p + q)} \\
&\quad [\because a^2 - b^2 = (a - b)(a + b)] \\
&= \frac{5}{2}q(p - q)
\end{aligned}$$

$$\text{(vi)} \quad 12xy(9x^2 - 16y^2) \div 4xy(3x + 4y)$$

$$= \frac{12xy(9x^2 - 16y^2)}{4xy(3x + 4y)}$$

$$\begin{aligned}
&= \frac{12xy[(3x)^2 - (4y)^2]}{4xy(3x+4y)} \\
&= \frac{12xy(3x-4y)(3x+4y)}{4xy(3x+4y)} \\
&[\because a^2 - b^2 = (a-b)(a+b)] \\
&= 3(3x-4y)
\end{aligned}$$

**(vii)**  $39y^3(50y^2 - 98) \div 26y^2(5y + 7)$

$$\begin{aligned}
&= \frac{39y^3(50y^2 - 98)}{26y^2(5y + 7)} \\
&= \frac{39y^3 \times 2(25y^2 - 49)}{26y^2(5y + 7)} \\
&= \frac{39y^2 \times 2[(5y)^2 - (7)^2]}{26y^2(5y + 7)} \\
&= \frac{39y^2 \times 2(5y - 7)(5y + 7)}{26y^2(5y + 7)} \\
&[\because a^2 - b^2 = (a-b)(a+b)] \\
&= 3y(5y - 7)
\end{aligned}$$

\*\*\*\*\* END \*\*\*\*\*