

Class: VIII

Subject: Mathematics

Topic: Chapter - 14:

Teacher: Ms. Deepa

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Factorization

Factorization is the process of converting an algebraic expression into the product of two or more expressions.
for e.g

$$15 = 3 \times 5$$



3 and 5 are the factors of 15.

$$x + 2x^3 = x(1 + 2x^2)$$



x and $(1 + 2x^2)$ are the factors of $x + 2x^3$

Steps to be followed:

(i) Take out the common part out of the given terms of the expression (if possible)

(ii) Groups the terms which have common factor.

(iii) Factorize by using formula $a^2 - b^2 = (a + b)(a - b)$

(iv) By using $a^2 \pm 2ab + b^2 = (a \pm b)^2$

Exercise - 14A

Sol'n 2 $9bx^2 + 15b^2x = 3bx(3x + 5b)$

Sol'n 4 $5x^2 + 15x^3 - 20x = 5x(x + 3x^2 - 4)$

Sol'n 8 $15x^2y - 6xy^2 + 9y^3 = 3y(5x^2 - 2xy + 3y^2)$

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Teacher: Ms. Gupta

Topic: Chapter - 14

$$\text{Soln 2} \quad 4(a+b) - 6(a+b)^2 = 2(a+b) \times [2 - 3(a+b)] \\ = 2(a+b)(2-3a-3b)$$

$$\text{Soln 7} \quad a(3x-2y) + b(2y-3x) = (3x-2y)(a-b)$$

Exercise - 14B

$$\text{Soln 2} \quad \underbrace{5ab - 10b}_{(a-2)} - \underbrace{7a + 14}_{(a-2)} = 5b(a-2) - 7(a-2) \\ = (a-2)(5b-7)$$

$$\text{Soln 11} \quad \underbrace{(x-2) - (x-2)^2}_{(x-2)} + \underbrace{ax - 2a}_{(x-2)} \\ = (x-2)(1 - (x-2)) + a(x-2) \\ = (x-2)(1-x+2) + a(x-2) \\ = (x-2)(1-x+2+a)$$

$$\text{Soln 15} \quad ab(x^2+y^2) + xy(a^2+b^2) \\ = \underbrace{abx^2 + aby^2}_{ax} + \underbrace{xya^2 + xyb^2}_{by} \\ = ax(bx+ay) + by(ay+bx) \\ = (bx+ay)(ax+by)$$

$$\text{Soln 22} \quad \underbrace{a^2b^2 + b^2}_{b^2} + \underbrace{a^2 + 1}_{(a^2+1)} \\ = b^2(a^2+1) + 1(a^2+1) \\ = (a^2+1)(b^2+1)$$

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