

Exercise – 4.1

By Mubashar Siddique

Question 1 Factorize by identifying common factors.	Question 2 Factorize the following
i) $6x+12$ $6(x+2)$ Ans ii) $15y^2+20y$ $5y(3y+4)$ Ans iii) $-12x^2-3x$ $-3x(4x+1)$ Ans iv) $4a^2b+8ab^2$ $4ab(a+2b)$ Ans v) $xy-3x^2+2x$ $x(y-3x+2)$ Ans vi) $3a^2b-9ab^2+15ab$ $3ab(a-3b+5)$ Ans	i) $5x+15$ $5(x+3)$ Ans ii) x^2+4x+3 $x^2+3x+x+3$ $(x^2+3x)+(x+3)$ $x(x+3)+1(x+3)$ $(x+1)(x+3)$Ans iii) x^2+6x+8 $x^2+4x+2x+8$ $(x^2+4x)+(2x+8)$ $x(x+4)+2(x+4)$ $(x+2)(x+4)$Ans iv) x^2+4x+4 $x^2+2x+2x+4$ $(x^2+2x)+(2x+4)$ $x(x+2)+2(x+2)$ $(x+2)(x+2)$Ans

Question 3 Factorize

i) $x^2 + x - 12$

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

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

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

$$(x - 3)(x + 4) \text{ Ans}$$

ii) $x^2 + 7x + 10$

$$x^2 + 5x + 2x + 10$$

$$(x^2 + 5x) + (2x + 10)$$

$$x(x + 5) + 2(x + 5)$$

$$(x + 2)(x + 5) \text{ Ans}$$

iii) $x^2 - 6x + 8$

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

$$(x^2 - 4x) - (2x - 8)$$

$$x(x - 4) - 2(x - 4)$$

$$(x - 2)(x - 4) \text{ Ans}$$

iv) $x^2 - x - 56$

$$x^2 - 8x + 7x - 56$$

$$(x^2 - 8x) + (7x - 56)$$

$$x(x - 8) + 7(x - 8)$$

$$(x + 7)(x - 8) \text{ Ans}$$

v) $x^2 - 10x - 24$

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

$$(x^2 - 12x) + (2x - 24)$$

$$x(x - 12) + 2(x - 12) \text{ Ans}$$

vi) $y^2 + 4y - 12$

$$y^2 - 2y + 6y - 12$$

$$(y^2 - 2y) + (6y - 12)$$

$$y(y - 2) + 6(y - 2)$$

$$(y + 6)(y - 2) \text{ Ans}$$

vii) $y^2 + 13y + 36$

$$y^2 + 4y + 9y + 36$$

$$(y^2 + 4y) + (9y + 36)$$

$$y(y + 4) + 9(y + 4)$$

$$(y + 9)(y + 4) \text{ Ans}$$

viii) $x^2 - x - 2$

$$x^2 - 2x + x - 2$$

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

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

$$(x + 1)(x - 2) \text{ Ans}$$

Question 4 Factorize

i) $2x^2 + 7x + 3$

$$2x^2 + 1x + 6x + 3$$

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

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

$$(x + 3)(2x + 1) \text{ Ans}$$

ii) $2x^2 + 11x + 15$

$$2x^2 + 5x + 6x + 15$$

$$(2x^2 + 5x) + (6x + 15)$$

$$x(2x + 5) + 3(2x + 5)$$

$$(x + 3)(2x + 5) \text{ Ans}$$

iii) $4x^2 + 13x + 3$

$$4x^2 + 1x + 12x + 3$$

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

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

$$(x + 3)(4x + 1) \text{ Ans}$$

iv) $3x^2 + 5x + 2$

$$3x^2 + 2x + 3x + 2$$

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

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

$$(x + 1)(3x + 2) \text{ Ans}$$

v) $3y^2 - 11y + 6$

$$3y^2 - 2y - 9y + 6$$

$$(3y^2 - 2y) - (9y - 6)$$

$$y(3y - 2) - 3(3y - 2)$$

$$(y - 3)(3y - 2) \text{ Ans}$$

vi) $2y^2 - 5y + 2$

$$2y^2 - 1y - 4y + 2$$

$$(2y^2 - 1y) - (4y - 2)$$

$$y(2y - 1) - 2(2y - 1)$$

$$(y - 2)(2y - 1) \text{ Ans}$$

vii) $4z^2 - 11z + 6$

$$4z^2 - 8z - 3z + 6$$

$$(4z^2 - 8z) - (3z - 6)$$

$$4z(z - 2) - 3(z - 2)$$

$$(4z - 3)(z - 2) \text{ Ans}$$

viii) $6 + 7x - 3x^2$

$$-3x^2 + 7x + 6$$

$$-3x^2 - 2x + 9x + 6$$

$$(-3x^2 - 2x) + (9x + 6)$$

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

$$(-x + 3)(3x + 2) \text{ Ans}$$

These notes are prepared by **Mubashar Siddique (BS Mathematics)** and published on this website.

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