

## FACTORISATION

### Question 1

$$15x + 5$$

#### Solution

Simplifying we get  $15x + 5 = 5(3x + 1)$

### Question 2

$$a^3 - a^2 + a$$

#### Solution:

Simplifying we get  $a^3 - a^2 + a = a(a^2 - a + 1)$

### Question 3

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

#### Solution:

Simplifying we get  $3x^2 + 6x^3 = 3x^2(1 + 2x)$

### Question 4

$$4a^2 - 8ab$$

#### Solution

$$4a^2 - 8ab = 4a(a - 2b)$$

### Question 5

$$2x^3b^2 - 4x^5b^4$$

#### Solution:

Simplifying we get  $2x^3b^2 - 4x^5b^4 = 2x^3b^2(1 - 2x^2b^2)$

### Question 6

$$15x^4y^3 - 20x^3y$$

#### Solution:

$$15x^4y^3 - 20x^3y = 5x^3y(3xy^2 - 4)$$

### Question 7.

$$a^3b - a^2b^2 - b^3$$

**Solution:**

Simplifying we get  $a^3b - a^2b^2 - b^3 = b(a^3 - a^2b - b^2)$

**Question 8.**

$$6x^2y + 9xy^2 + 4y^3$$

**Solution:**

Simplifying we get  $6x^2y + 9xy^2 + 4y^3 = y(6x^2 + 9xy + 4y^2)$

**Question 9**

$$17a^6b^8 - 34a^4b^6 + 51a^2b^4$$

**Solution:**

$$17a^6b^8 - 34a^4b^6 + 51a^2b^4$$

Simplifying we get  $17a^2b^4(a^4b^4 - 2a^2b^2 + 3)$

**Question 10**

$$3x^5y - 27x^4y^2 + 12x^3y^3$$

**Solution:**

Simplifying we get

$$3x^5y - 27x^4y^2 + 12x^3y^3 = 3x^3y(x^2 - 9xy + 4y^2)$$

**Question 11.**

$$x^2(a - b) - y^2(a - b) + z^2(a - b)$$

**Solution:**

$$x^2(a - b) - y^2(a - b) + z^2(a - b) = (a - b)(x^2 - y^2 + z^2)$$

**Question 12.**

$$(x + y)(a + b) + (x - y)(a + b)$$

**Solution:**

$$(x + y)(a + b) + (x - y)(a + b) = (a + b)(2x)$$

$$= 2x(a + b)$$

**Question 13**

$$2b(2a + b) - 3c(2a + b)$$

**Solution:**

$$2b(2a + b) - 3c(2a + b) = (2a + b)(2b - 3c)$$

**Question 14.**

$$12abc - 6a^2b^2c^2 + 3a^3b^3c^3$$

**Solution:**

$$12abc - 6a^2b^2c^2 + 3a^3b^3c^3 = 3abc(4 - 2abc + a^2b^2c^2)$$

**Question 15.**

$$4x(3x - 2y) - 2y(3x - 2y)$$

**Solution:**

$$4x(3x - 2y) - 2y(3x - 2y) = (3x - 2y)(4x - 2y)$$

$$= (3x - 2y) \times 2(2x - y)$$

$$= 2(3x - 2y)(2x - y)$$

