مشق 2.3

اجزائے ضربی بنایئے۔

1۔ $x^2 + 9x + 20$

حل:

$$\begin{aligned} x^2 + 9x + 20 &= x^2 + 4x + 5x + 20 \\ &= x(x + 4) + 5(x + 4) \\ &= (x + 4)(x + 5) \end{aligned}$$

2۔ $x^2 + 5x - 14$

حل:

$$\begin{aligned} x^2 + 5x - 14 &= x^2 + 7x - 2x - 14 \\ &= x(x + 7) - 2(x + 7) \\ &= (x + 7)(x - 2) \end{aligned}$$

3- $x^2 + 5x - 6$

حل:

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

4- $x^2 - 7x + 12$

حل:

$$x^2 - 7x + 12 = x^2 - 4x - 3x + 12$$
$$= x(x - 4) - 3(x - 4)$$
$$= (x - 4)(x - 3)$$

5- $x^2 - x - 156$

حل:

$$x^2 - x - 156 = x^2 - 13x + 12x - 156$$
$$= x(x - 13) + 12(x - 13)$$
$$= (x - 13)(x + 12)$$

6- $x^2 - x - 2$

حل:

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

7- $x^2 - 9x - 90$

حل:

$$x^2 - 9x - 90 = x^2 - 15x + 6x - 90$$
$$= x(x - 15) + 6(x - 15)$$
$$= (x - 15)(x + 6)$$

8- $a^2 - 12a - 85$

حل:

$$a^2 - 12a - 85 = a^2 - 17a + 5a - 85$$
$$= a(a - 17) + 5(a - 17)$$
$$= (a - 17)(a + 5)$$

9- $98 - 7x - x^2$

$$98 - 7x - x^2 = 98 - 14x + 7x - x^2$$
$$= 14(7 - x) + x(7 - x)$$
$$= (7 - x)(14 + x)$$

10- $y^2 - 11y - 152$

حل:

$y^2 - 11y - 152 = y^2 - 19y + 8y - 152$

$= y(y - 19) + 8(y - 19)$

$= (y - 19)(y + 8)$

11- $2x^2 + 3x + 1$

حل:

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

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

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

12- $3x^2 + 5x + 2$

حل:

$3x^2 + 5x + 2 = 3x^2 + 3x + 2x + 2$

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

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

13- $2x^2 - x - 1$

حل:

$2x^2 - x - 1 = 2x^2 - 2x + x - 1$

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

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

14- $6x^2 + 7x - 3$

حل:

$6x^2 + 7x - 3 = 6x^2 + 9x - 2x - 3$

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

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

15- $2 - 3x - 2x^2$

حل:

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

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

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

$= (x + 2)(1 - 2x)$ یا

16- $8 + 6x - 5x^2$

حل:

$8 + 6x - 5x^2 = 8 + 10x - 4x - 5x^2$

$= 2(4 + 5x) - x(4 + 5x)$

$= (4 + 5x)(2 - x)$

17- $3u^2 - 10u + 8$

حل:

$3u^2 - 10u + 8 = 3u^2 - 6u - 4u + 8$

$= 3u(u-2) - 4(u-2)$

$= (u-2)(3u-4)$

18- $10x^2 - 7x - 12$

حل:

$10x^2 - 7x - 12 = 10x^2 - 15x + 8x - 12$

$= 5x(2x-3) + 4(2x-3)$

$= (2x-3)(5x+4)$

19- $5x^2 - 32x + 12$

حل:

$5x^2 - 32x + 12 = 5x^2 - 30x - 2x + 12$

$= 5x(x-6) - 2(x-6)$

$= (x-6)(5x-2)$

20- $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$

حل:

$4\sqrt{3}x^2 + 5x - 2\sqrt{3} = 4\sqrt{3}x^2 + 8x - 3x - 2\sqrt{3}$

$= 4x(\sqrt{3}x + 2) - \sqrt{3}(\sqrt{3}x + 2)$

$= (\sqrt{3}x + 2)(4x - \sqrt{3})$