

مشق 2.3

اجزائے ضربی بتائیے۔

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:

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

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

حل:

$$\begin{aligned} x^2 + 5x - 6 &= x^2 + 6x - x - 6 \\ &= x(x + 6) - 1(x + 6) \\ &= (x + 6)(x - 1) \end{aligned}$$

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

حل:

$$\begin{aligned} x^2 - 7x + 12 &= x^2 - 4x - 3x + 12 \\ &= x(x - 4) - 3(x - 4) \\ &= (x - 4)(x - 3) \end{aligned}$$

$$x^2 - x - 156 \quad -5$$

حل:

$$\begin{aligned} x^2 - x - 156 &= x^2 - 13x + 12x - 156 \\ &= x(x - 13) + 12(x - 13) \\ &= (x - 13)(x + 12) \end{aligned}$$

$$x^2 - x - 2 \quad -6$$

حل:

$$\begin{aligned} x^2 - x - 2 &= x^2 - 2x + x - 2 \\ &= x(x - 2) + 1(x - 2) \\ &= (x - 2)(x + 1) \end{aligned}$$

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

حل:

$$\begin{aligned} x^2 - 9x - 90 &= x^2 - 15x + 6x - 90 \\ &= x(x - 15) + 6(x - 15) \\ &= (x - 15)(x + 6) \end{aligned}$$

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

حل:

$$\begin{aligned} a^2 - 12a - 85 &= a^2 - 17a + 5a - 85 \\ &= a(a - 17) + 5(a - 17) \\ &= (a - 17)(a + 5) \end{aligned}$$

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

$$\begin{aligned} 98 - 7x - x^2 &= 98 - 14x + 7x - x^2 \\ &= 14(7 - x) + x(7 - x) \\ &= (7 - x)(14 + x) \end{aligned}$$

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

حل:

$$\begin{aligned}
 y^2 - 11y - 152 &= y^2 - 19y + 8y - 152 \\
 &= y(y - 19) + 8(y - 19) \\
 &= (y - 19)(y + 8)
 \end{aligned}$$

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

حل:

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

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

حل:

$$\begin{aligned}
 3x^2 + 5x + 2 &= 3x^2 + 3x + 2x + 2 \\
 &= 3x(x + 1) + 2(x + 1) \\
 &= (x + 1)(3x + 2)
 \end{aligned}$$

$$2x^2 - x - 1 \quad -13$$

حل:

$$\begin{aligned}
 2x^2 - x - 1 &= 2x^2 - 2x + x - 1 \\
 &= 2x(x - 1) + 1(x - 1) \\
 &= (x - 1)(2x + 1)
 \end{aligned}$$

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

حل:

$$\begin{aligned}
 6x^2 + 7x - 3 &= 6x^2 + 9x - 2x - 3 \\
 &= 3x(2x + 3) - 1(2x + 3) \\
 &= (2x + 3)(3x - 1)
 \end{aligned}$$

$$2 - 3x - 2x^2 \quad -15$$

حل:

$$\begin{aligned}
 2 - 3x - 2x^2 &= 2 - 4x + x - 2x^2 \\
 &= 2(1 - 2x) + x(1 - 2x) \\
 &= (1 - 2x)(2 + x) \\
 &= (x + 2)(1 - 2x)
 \end{aligned}$$

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

حل:

$$\begin{aligned}
 8 + 6x - 5x^2 &= 8 + 10x - 4x - 5x^2 \\
 &= 2(4 + 5x) - x(4 + 5x) \\
 &= (4 + 5x)(2 - x)
 \end{aligned}$$

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

حل:

$$\begin{aligned}
 3u^2 - 10u + 8 &= 3u^2 - 6u - 4u + 8 \\
 &= 3u(u - 2) - 4(u - 2) \\
 &= (u - 2)(3u - 4)
 \end{aligned}$$

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

حل:

$$\begin{aligned}
 10x^2 - 7x - 12 &= 10x^2 - 15x + 8x - 12 \\
 &= 5x(2x - 3) + 4(2x - 3) \\
 &= (2x - 3)(5x + 4)
 \end{aligned}$$

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

حل:

$$\begin{aligned}
 5x^2 - 32x + 12 &= 5x^2 - 30x - 2x + 12 \\
 &= 5x(x - 6) - 2(x - 6) \\
 &= (x - 6)(5x - 2)
 \end{aligned}$$

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

حل:

$$\begin{aligned}
 4\sqrt{3}x^2 + 5x - 2\sqrt{3} &= 4\sqrt{3}x^2 + 8x - 3x - 2\sqrt{3} \\
 &= 4x(\sqrt{3}x + 2) - \sqrt{3}(\sqrt{3}x + 2) \\
 &= (\sqrt{3}x + 2)(4x - \sqrt{3})
 \end{aligned}$$