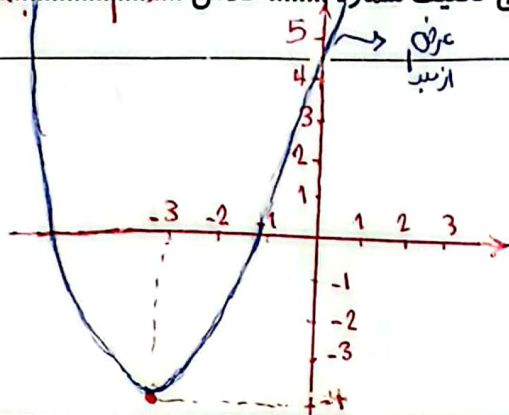




(ب)

الف) $a > 1 \rightarrow \min U$

$$x: \frac{-b}{2a} = \frac{-1}{2 \times 1} = -\frac{1}{2} = -0.5$$

$$y: 9 - 1 + 4 = 12$$

$[-0.5, 12]$

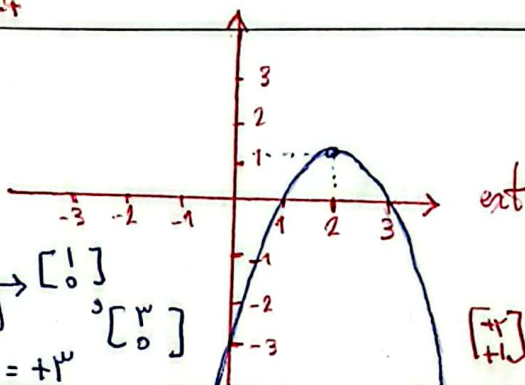
(ب) شایع با محور x ها

$$y=0$$

$$x^2 + 2x - 3 = 0$$

$$x^2 + 2x - 3 = 0 \rightarrow x = 1, x = -3$$

$$-1 + 4 - 3 = 0 \rightarrow x = 1, x = -3$$



الف) $a < 0 \rightarrow \max U$

$$x: \frac{-b}{2a} = \frac{-1}{2 \times (-1)} = \frac{1}{2} = 0.5$$

$$y: -1 + 1 - 3 = -3$$

$[0.5, -3]$

(ج) باید دلتا منفی $\Delta < 0$ بود

$$\Delta = b^2 - 4ac \Rightarrow 9 - 4a < 0$$

$$a > \frac{9}{4}$$

(ب) باید دلتا مساوی صفر $\Delta = 0$ برابر ضرب شود

$$\Delta = b^2 - 4ac$$

$$9 - 4a = 0 \Rightarrow a = \frac{9}{4}$$

الف) باید دلتا مثبت $\Delta > 0$ مثبت باشد

$$\Delta = b^2 - 4ac$$

$$\Delta = (-1)^2 - 4(1a) > 0$$

$$9 - 4a > 0 \Rightarrow a < \frac{9}{4}$$

(ج) باید دلتا نامنفی باشد $\Delta \geq 0$

$$9 - 4a \geq 0 \Rightarrow a \leq \frac{9}{4}$$

$$(x^2 - \frac{1}{x})^2 = \frac{25}{4}$$

$$x^2 - \frac{1}{x} = \pm \frac{\sqrt{25}}{2}$$

$$\frac{1}{x} + \frac{\sqrt{25}}{2} = x^2$$

$$\frac{1}{x} - \frac{\sqrt{25}}{2} = x^2$$

$$x = \frac{1 + \sqrt{25}}{2}, x = \frac{1 - \sqrt{25}}{2}$$

$$x^2 - x - 1 = 0$$

$$x^2 - x = 1$$

$$x^2 - x + \frac{1}{4} = 1 + \frac{1}{4}$$

$$(x - \frac{1}{2})^2 = \frac{5}{4}$$

$$x - \frac{1}{2} = \pm \frac{\sqrt{5}}{2}$$

$$x = \frac{1 + \sqrt{5}}{2}, x = \frac{1 - \sqrt{5}}{2}$$

$$x^2 - 2x - 1 = 0$$

$$x^2 - 2x - 1 + 1 = 0$$

$$x^2 - 2x + 1 = 0$$

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

$$x - 1 = \pm 1$$

$$x = 2, x = 0$$

$$x^2 - 2x - 1 = 0$$

$$\Delta = b^2 - 4ac$$

$$4 - 4(1 \times -1) = 8$$

$$x = \frac{2 \pm \sqrt{8}}{2} = 1 \pm \sqrt{2}$$

$$x = \frac{-1 + \sqrt{14}}{2}$$

$$x = \frac{-1 - \sqrt{14}}{2}$$

$$x^2 + x - 4 = 0$$

$$\Delta = b^2 - 4ac$$

$$1 - 4(1 \times -4) = 17$$

$$x = \frac{-1 \pm \sqrt{17}}{2}$$

$$x = \frac{-1 + \sqrt{17}}{2}, x = \frac{-1 - \sqrt{17}}{2}$$

$$x = 1 - \sqrt{2}$$

$$x = 1 + \sqrt{2}$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a}$$

$$x = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$$

$$x^2 + 3x - 4 = 0 \quad (\text{ب})$$

$$(x-4)(x+1) = 0$$

$$x = 4$$

$$x = -1$$

$$x^2 - 11x + 18 = 0 \quad (\text{الف})$$

$$(x-4)(x-9) = 0$$

$$x = 4$$

$$x = 9$$

$$2x^2 - 10x + 12 = 0 \quad (\text{ب})$$

$$x^2 - 5x + 6 = 0$$

$$(x-3)(x-2) = 0$$

$$x = 3$$

$$x = 2$$

$$2x^2 - 12x + 10 = 0 \quad (\text{الف})$$

$$x^2 - 6x + 5 = 0$$

$$(x-5)(x-1) = 0$$

$$x = 5$$

$$x = 1$$

$$2x^2 + 7x + 9 = 0 \quad (\text{ب})$$

$$2x^2 - 2x + 1 = 0 \quad (\text{ج})$$

$$2x^2 + 5x - 12 = 0 \quad (\text{ب})$$

$$2x^2 - 5x + 3 = 0 \quad (\text{الف})$$

$$\Delta = b^2 - 4ac$$

$$49 - 144 = -95$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a}$$

$$x = \frac{-7 \pm \sqrt{-95}}{4}$$

$$\Delta = b^2 - 4ac$$

$$4 - 4 = 0$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a}$$

$$x = \frac{1 \pm 0}{2} = \frac{1}{2}$$

$$a + c = b$$

$$2 + 3 = 5$$

$$x = -1$$

$$x = \frac{-c}{a} = \frac{-3}{2}$$

$$a + b + c = 0$$

$$2 - 5 + 3 = 0$$

$$x = 1$$

$$x = \frac{c}{a} = \frac{3}{2}$$

$$S^r - 2P = 9 - (-4) = 9 + 4 = 13$$

$$S^r - 3SP \Rightarrow 27 - (-18) = 27 + 18 = 45$$

$$x^2 - 3x - 2 = 0$$

$$\frac{+3}{1} = \frac{-b}{a} \Rightarrow \frac{-(-3)}{1} = 3$$

$$\frac{-2}{1} = \frac{c}{a} \Rightarrow \frac{-2}{1} = -2$$

$$(\Delta^0) + (2^9) =$$

$$\frac{1!}{1!1!} + \frac{9!}{1!8!} = \frac{1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9}{1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1} = 1 + 36 = 37$$

$$(3^9) - (2^1) =$$

$$\frac{9!}{3!6!} - \frac{1!}{1!0!} = \frac{1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9}{3 \times 2 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1} - 1 = 28 - 1 = 27$$

$$18 - 21 = -3$$