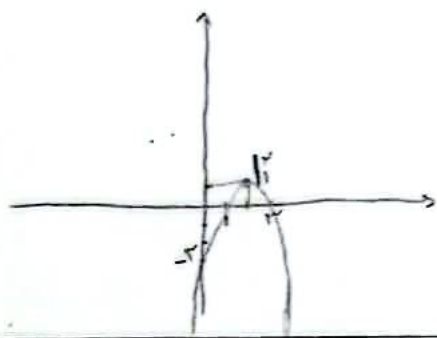


$$\begin{pmatrix} 1 \\ -2 \end{pmatrix}$$

$$y = -4 \leq x = -3 \leq -\frac{1}{2}$$

$$x = -\frac{b}{2a} = -\frac{4}{2} = -2$$

(ج)



$$1 \leftarrow 1 = y \leftarrow x = 2 = -\frac{4}{2}$$

(ب) 1, 2

(1, 75)

$$\begin{aligned} \Delta > 0 &\rightarrow b^2 - 4ac > 0 \rightarrow (-2)^2 - 4(1)(a) > 0 \Rightarrow a \in \mathbb{R}, a < \frac{1}{4} \quad (الف) \\ \Delta = 0 &\rightarrow b^2 - 4ac = 0 \rightarrow (-2)^2 - 4(1)(a) = 0 \Rightarrow 1 = 4a \rightarrow a = \frac{1}{4} \quad (ب) \\ \Delta < 0 &\rightarrow b^2 - 4ac < 0 \rightarrow (-2)^2 - 4(1)(a) < 0 \Rightarrow 1 < 4a \rightarrow a > \frac{1}{4} \quad (2) \\ \Delta \geq 0 &\rightarrow b^2 - 4ac \geq 0 \rightarrow (-2)^2 - 4(1)(a) \geq 0 \Rightarrow 1 \geq 4a \rightarrow a \leq \frac{1}{4} \quad (د) \end{aligned}$$

(5)

$$\begin{aligned} (الف) \quad x^2 - x - 1 &= 0 \rightarrow x^2 - 2x + 2 - 1 = 2 \rightarrow x^2 - 2x + 1 = 2 \rightarrow (x-1)^2 = 2 \\ &\rightarrow x-1 = \pm\sqrt{2} \\ &\rightarrow x = \sqrt{2} + 1 \quad (1) \\ &\quad x = -\sqrt{2} + 1 \quad (2) \\ (ب) \quad x^2 - x - 1 &= 0 \rightarrow x^2 - x + 1/2 - 1 = 1/2 \\ x^2 - x + 1/2 &= 1/2 \rightarrow (x - 1/2)^2 = 1/2 \rightarrow x - 1/2 = \pm\sqrt{1/2} \\ x &= 1/2 + \frac{\sqrt{2}}{2} \\ x &= 1/2 - \frac{\sqrt{2}}{2} \end{aligned}$$

(6)

$$\begin{aligned} (الف) \quad x^2 - 2x - 1 &= 0 \rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{2 \pm \sqrt{4+4}}{2} = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2} \\ &\quad (1) \quad (2) \\ (ب) \quad x^2 + x - 1 &= 0 \rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-1 \pm \sqrt{1-(-4)}}{2} = \frac{-1 \pm \sqrt{5}}{2} \\ &\quad (1) \quad (2) \end{aligned}$$

(5)

$$\text{a)} (x-r)(x-v) \rightarrow x=r \vee x=v$$

$$\text{b)} (x-r)(x+v) \rightarrow x=r \vee x=-v$$

$$\text{a)} \Delta x^2 - 12x + V = 0 \Rightarrow x^2 - 12x + V = 0 \rightarrow (x-v)(x-\Delta) \rightarrow x = \frac{V}{\Delta} \vee x = \frac{\Delta}{\Delta} = 1$$

$$\text{b)} 12x^2 - 10x + V = 0 \Rightarrow x^2 - 10x + V = 0 \rightarrow (x-r)(x-v) \rightarrow x = \frac{r}{r} = 1 \vee x = \frac{V}{r}$$

$$\text{a)} a+b+c=0 \rightarrow x=1 \vee x = \frac{c}{a} \rightarrow \frac{r}{r}$$

$$\text{b)} a+c=b \rightarrow x=-1 \vee x = -\frac{c}{a} \rightarrow -\frac{r}{r}$$

$$\text{c)} 12x^2 - 10x + 1 = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{10 \pm \sqrt{100 - 48}}{24} = \frac{10 \pm \sqrt{52}}{24} = \frac{5 \pm \sqrt{13}}{12}$$

$$\text{d)} \Delta = b^2 - 4ac \rightarrow 100 - (12 \times 12 \times 9) = -92 \Rightarrow \Delta < 0$$

$$S = \frac{12 + \sqrt{12}}{12} + \frac{12 - \sqrt{12}}{12} = \frac{24}{12} = 2 \quad P = \frac{12 + \sqrt{12}}{12} \cdot \frac{12 - \sqrt{12}}{12} = \frac{144 - 12}{144} = \frac{132}{144} = \frac{11}{12}$$

$$\text{a)} \left(\frac{12}{12} \right) - \left(\frac{12}{12} - 1 \right) = 1$$

$$\text{b)} \left(\frac{12}{12} \right) - \left(\frac{12}{12} - 1 \right) = 1$$

$$S = -\frac{b}{a} = 2$$

$$P = \frac{c}{a} = \frac{1}{12}$$

$$\text{a)} \textcircled{1} \frac{12}{12} + \frac{12}{12} = 2$$

$$\text{b)} \textcircled{1} \frac{12}{12} - \frac{12}{12} = 0$$