

۱۸، ۱۷۵

$$y = a(x+1)^2 + 9 \Rightarrow 1 = 19a + 9 \quad 19a = -8 \quad a = -\frac{8}{19} = -\frac{1}{19}$$

$$y = -\frac{1}{19}(x^2 + 2x) + 9 = -\frac{1}{19}x^2 - \frac{2}{19}x - \frac{1}{19} + 9 = -\frac{1}{19}x^2 - \frac{2}{19}x + \frac{17}{19} = -x^2 - 2x + 17$$

$$2x^2 + mx + (m+6) = 0 \quad \Delta > 0$$

$$S > 0 \quad P > 0$$

$$\frac{-m}{2} > 0 \quad \frac{m+6}{2} > 0$$

$$m < 0 \quad m > -6$$

$$m^2 - 4(m+6) > 0$$

$$(m-12)(m+6) > 0$$

$$m > 12 \quad m < -6$$

$$m \in (-6, -1) \checkmark$$

$$S = \frac{1}{ab} \Rightarrow a+b = \frac{1}{ab} \quad \therefore \frac{1-2m}{2} = \frac{1}{2-m}$$

$$9 = \frac{1}{2-m} \quad 2-m = \frac{1}{9}$$

$$m = -\frac{1}{9}$$

$$m = \frac{1}{9} \quad \Delta > 0 \Rightarrow m = \frac{1}{9} \checkmark$$

$$x^2 - x - 1 = 0 \quad x_1 = \alpha \quad x_2 = \beta \quad S = \alpha^2 + \frac{1}{\alpha} + \beta^2 + \frac{1}{\beta} = \frac{\alpha^2 + \beta^2}{\alpha\beta} + \frac{\alpha + \beta}{\alpha\beta}$$

$$S = \frac{S^2 - 2PS + \frac{1}{P}}{P} = 1 + \frac{1}{P} + \frac{1}{P} = 1 + \frac{2}{P} = \frac{P+2}{P}$$

$$P' = (\alpha^2 + \frac{1}{\alpha})(\beta^2 + \frac{1}{\beta}) = \alpha^2\beta^2 + \alpha^2\beta + \alpha\beta^2 + \frac{1}{\alpha\beta} = P + S^2 - 2P + \frac{1}{P} = -S^2 + 9 - \frac{1}{P} = -\frac{221}{9}$$

$$y = x^2 - Sx + P' = x^2 - \frac{P+2}{P}x - \frac{221}{9} = (x^2 - \frac{P+2}{P}x - \frac{221}{9}) = 0$$

$$\sqrt{x} = t \quad (t^2 + \frac{1}{t^2} + 1)(t^2 - 1) = 2t \quad (t^2 + t + 1)(t^2 - 1) = 2t \Rightarrow t^4 + t^2 + 1 = (t^2 + t + 1)(t^2 - t + 1)$$

$$(t^2 - 1)(t^2 + 1) = t^4 - 1 \Rightarrow (t^2 + t + 1)(t^2 - t + 1) = t^4 - 1$$

$$t^4 - 1 = 0 \quad t^2 = 1 \quad t = \pm 1$$

$$x_1 + x_2 = 1 + \sqrt{x} + 1 - \sqrt{x} = 2 \checkmark$$

$$2x^2 - ax + f$$

$$\alpha = 2K \quad B = K$$

$$S = fK = \frac{a}{2}$$

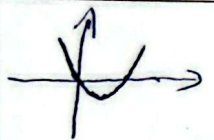
$$K = \frac{a}{2} = \pm \frac{2}{2} \Rightarrow \alpha = \pm 1$$

$$P = 2K^2 = \frac{f}{2}$$

$$K^2 = \frac{f}{2} \quad K = \pm \frac{\sqrt{f}}{\sqrt{2}}$$

$$1 - (-1) = 1 \checkmark$$

(2)
6



عرفت از شما
ندارد
بکارت صفر
بکارت مسدود
S > 0
P = 0

$$ax^2 + (2+2a)x$$

$$\begin{aligned} & \left(\begin{array}{l} a > 0 \\ \frac{2+2a}{-a} > 0 \end{array} \right) \cap \left(\begin{array}{l} -\frac{2}{2a} < 0 \end{array} \right) \rightarrow \text{هیچ عددی} \checkmark \\ & \frac{2a = -2}{a = -\frac{2}{2}} \quad \frac{-\frac{2}{2}}{-\frac{2}{2} + \frac{2}{2}} = 0 \\ & \left(\begin{array}{l} 1 > 0 \\ (2+2a)^2 \end{array} \right) \text{ صواب است} \end{aligned}$$

(2)
7

$$y = -x^2 - 2x + b$$

$$\frac{-b}{2a} = \frac{2}{-2} = -1$$

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

$$y = x^2 + ax - 2$$

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

$$y = 1$$

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

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

$$\Delta = 0$$

$$\begin{aligned} f - f + fb &= 0 \\ fb &= 0 \\ b &= 0 \end{aligned}$$

$$ab = 2 \times 0 = 0$$

(2)
8

$$2ax^2 + ax - 9 = 0$$

$$\alpha, B$$

$$S = \frac{-a}{2a} = -\frac{1}{2}$$

$$P = \frac{-9}{2a} = \frac{9}{2} = 2$$

$$2x^2 - ax + b$$

$$\alpha + \frac{1}{2}, B + \frac{1}{2}$$

$$S' = S + 1$$

$$\frac{a}{2} = -\frac{1}{2} + 1 = \frac{1}{2}$$

$$a = 1$$

$$P' = \left(\alpha + \frac{1}{2}\right)\left(B + \frac{1}{2}\right) = \alpha B + \frac{1}{2}\alpha + \frac{1}{2}B + \frac{1}{4}$$

$$P + \frac{1}{2}S + \frac{1}{4}$$

$$-2 - \frac{1}{2} + \frac{1}{4} = -2 = P' = \frac{b}{2}$$

$$\left[\frac{ab}{f}\right] = \left[\frac{(1) \times (-9)}{2}\right] = \left[-\frac{9}{2}\right] = -2 \checkmark$$

(2)
9

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

$$2x + fm = 0 \quad x = -\frac{m}{2}$$

$$(-m)^2 + 4(-m) + m = 0$$

$$m^2 - 9m + m = 0$$

$$m^2 - 8m = 0$$

$$m(m - 8) = 0$$

$$m = 0 \quad m = 8$$

$$S \text{ مابین } = x^2 + 4x + 4 = (x+2)(x+2)$$

$$S \text{ مابین } = x^2 + 2x - 15 = (x+5)(x-3)$$

$$2 - (-1) = 3 \checkmark$$

(2)
10

$$-\frac{a}{r} = \frac{r}{-r} \rightarrow \boxed{a, r}$$

-1

$$1 = u^r + r u - r \rightarrow (u+r)(u-1) = 0 \rightarrow \begin{cases} u=1 \rightarrow A(1,1) \\ u=r \rightarrow B(-r,1) \end{cases}$$

$$\boxed{b=r} \leftarrow 1 = -9 + 4 + b \quad \swarrow$$

$$\boxed{ab=1}$$