اسم نوشته نشده است

۱-

$y = a(x-h)^2 + k$, $h=-1$, $k=9$

$y = a(x+1)^2 + 9$

$y=1$, $x=3$: $1 = a(4)^2 + 9 \rightarrow 16a = -8 \rightarrow a = \frac{-1}{2}$

$\frac{-x^2}{2} + bx + c = y$

$= \frac{-1}{2}(x+1)^2 + 9 \rightarrow \frac{-x^2}{2} - \frac{1}{2} - x + 9$

$x^2 + 1 + 2x$

$\boxed{\frac{-x^2}{2} - x + \frac{17}{2} = y}$

۲-

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

$\Delta = m^2 - 4(2)(m+6) \geq 0$

$m^2 - 8m - 48 \geq 0$

$m = \frac{8 \pm \sqrt{64 + 192}}{2} = \frac{8 \pm 16}{2}$

$m = 12$, $m = -4$

$m \leq -4$ یا $m \geq 12$

$S = x_1 + x_2 = \frac{-m}{2} > 0 \rightarrow m < 0$

$P = x_1 x_2 = \frac{m+6}{2} > 0 \rightarrow m > -6$

$\cap \rightarrow (-6, -4]$

-۳

$$3x^2 + (2m-1)x + 2 - m = 0$$

$$\Delta > 0 \qquad \alpha + \beta = \frac{-b}{a} = \frac{1-2m}{3}$$

$$\alpha\beta = \frac{c}{a} = \frac{2-m}{3}$$

$$\frac{1-2m}{3} = \frac{3}{2-m} \rightarrow (2-m)(1-2m) = 9$$

$$\alpha + \beta = \frac{1}{\alpha\beta} \qquad 2m^2 - 5m - 7 = 0$$

$$m = \frac{5 \pm \sqrt{25 - 4(2)(-7)}}{4} = \begin{cases} \frac{7}{2} \\ -1 \end{cases}$$

$$\frac{49}{4} - 6 \cdot 3 \cdot 9 + 9 \times 2 > 0 \quad \text{ق ق}$$

$$-1 - 6(1 - 12) = -11 < 0 \quad \text{ع ق ق}$$

$$(2m-1)^2 - 4(2-m) \times 3 > 0 \qquad \boxed{\frac{7}{2}}$$

-۴

$$x^2 - x - 4 = 1$$

$$S = 1 \qquad \alpha + \beta = (x_1 + x_2)^3 - 3x_1x_2(x_1 + x_2) + \frac{x_1 + x_2}{x_1 x_2}$$

$$P = -4 \qquad \rightarrow 1 + 12 - \frac{1}{4} = \frac{51}{4}$$

$$\alpha\beta = (x_1 x_2)^3 + (x_1 + x_2)^2 - 2x_1x_2 + \frac{1}{x_1x_2}$$

$$\rightarrow = -64 + 1 + 8 - \frac{1}{4} = \frac{-221}{4}$$

$$4 \times \left(x^2 - \frac{51}{4}x - \frac{221}{4}\right) = 0$$

$$4x^2 - 51x - 221 = 0$$

-۵

$$\left(\sqrt[3]{x^2} + \frac{1}{\sqrt[3]{x^2}} + 1\right)\left(\sqrt[3]{x^2} - 1\right) = 2\sqrt[3]{x}$$

$$\left(x\sqrt[3]{x} - \frac{1}{\sqrt[3]{x^2}}\right) = \frac{x^2 - 1}{\sqrt[3]{x^2}} = \frac{2\sqrt[3]{x}}{1} \rightarrow$$

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

Senobar

$$\Delta = ۴ - ۴ \times ۱ \times (-۱) = ۸$$

$$\frac{۲ \pm \sqrt{۸}}{۲} = \begin{cases} \frac{۲+\sqrt{۸}}{۲} \\ \frac{۲-\sqrt{۸}}{۲} \end{cases}$$

$$\frac{۲+\sqrt{۸}}{۲} + \frac{۲-\sqrt{۸}}{۲} = \frac{۴}{۲} = ۲$$

۶-

$$S = x_1 + x_2 = ۴x = \frac{a}{۳}$$

$x \quad ۳x$

$$P = \frac{c}{a} = ۳x^2 = \frac{۴}{۳}$$

$$x^2 = \frac{۴}{۹} \rightarrow x = \pm\frac{۲}{۳}$$

$$۴ \times \frac{۲}{۳} = \frac{a}{۳} \rightarrow a = ۸$$

$$۴ \times \frac{-۲}{۳} = \frac{a}{۳} \rightarrow ۲a = ۸$$

$$۴ \times \frac{۲}{۳} = \frac{-a}{۳} \rightarrow a = ۸$$

$$۸ - (-۸) = ۱۶$$

$$-۸ - ۸ = -۱۶$$

$$۳x^2 - ۸x + ۴ = ۰$$

$$\Delta = ۶۴ - ۴ \times ۳ \times ۴ = ۱۶ \rightarrow \frac{۸ \pm ۴}{۶} \begin{cases} ۲ \\ \frac{۲}{۳} \end{cases}$$

$$y = ax^2 + (۳ + ۲a)x$$

۷- [illegible] $a > ۰$

$$\frac{-b}{a} \geq ۰ \rightarrow \frac{-۳-۲a}{a} \geq ۰ \rightarrow a = -\frac{۳}{۲}$$

$$a > ۰ \qquad \left(۰ \,,\, \frac{۳}{۲}\right]$$

$$۰ < a \leq \frac{۳}{۲}$$

$$a > ۰$$

۸-

$x = \frac{-b}{2a} \rightarrow \frac{-a}{2} = \frac{+2}{-2} \rightarrow \frac{a}{2} = -1 \rightarrow a = +2$

نقاط $(p, 1)$, $(q, 1)$ $\rightarrow y = 1$ مشترک

$(p, 1)$ $y = x^2 - 2x - 2 = 1 \rightarrow 1 = p^2 + 2p \, 2 \rightarrow p = 1$, $p = -3$

$y = -x^2 - 2x + b \xrightarrow{(1,1)} 1 = -1 - 2 \times 1 + b \rightarrow b = 4$

$1 = -(-3)^2 - 2 \times (-3) + b \rightarrow b = 4$

$ab = 2 \times 4 = 8$

۹-

$t \longrightarrow 2ax^2 + ax - 9$

$t + \frac{1}{2} \rightarrow 2x^2 - ax + b$

① $2at^2 + at - 9$

$2(t + \frac{1}{2})^2 - a(t + \frac{1}{2}) + b = 2t^2 + (2 - a)t - \frac{a}{2} + b + \frac{1}{2}$

$t^2 + t + \frac{1}{4}$ ②

$(I = II)$ $2at^2 + a + (-9) = 2t^2 + (2 - a)t - \frac{a}{2} + b + \frac{1}{2}$

$\begin{cases} a = 1 \\ b = -9 \end{cases}$

$[\frac{ab}{4}] = [\frac{-9 \times 1}{4}] \rightarrow [\frac{-9}{4}] = -3$

$x = a \rightarrow$ جواب مشترک

۱۰-

$a^2 + 9a + m = a^2 + 2a - 3m$

$a = -m$

$m^2 - 2m - 3m$

$m^2 - 5m$

$m(m - 5) = 0$

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

$m^2 - 5m = 0 \rightarrow m(m - 5)$

$(x-3)(x+6)$

$x^2+3x-18$

$x=3$

$x=-6$

$x^2+4x+6=0$

$(x+1)(x+6) \Rightarrow x=-1$

$x=-6$

$3-(-1)=4$

$-1-3=-4$

Sonoha