

بارش و شیب

0

130, 130

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

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

$$\Delta = 1 - 4(a-1) = -1 \quad (1)$$

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

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

$$\Delta = 1 - 4\left(-\frac{1}{2}\right)(1) = 1 + 2 = 3$$

$$x = \frac{-1 \pm \sqrt{3}}{-1} \quad \begin{cases} x = -1 \\ x = 2 \end{cases}$$

$$f(x) = mx^2 - 2x + 1$$

|        |       |       |
|--------|-------|-------|
| $x$    | $x_1$ | $x_2$ |
| $f(x)$ | $-1$  | $1$   |

بین دو نقطه  $m < 0$

$$\Delta > 0 \quad 2a - 4m > 0 \quad 2m < 2a \quad m < \frac{2a}{2} \quad -a < m < a$$

$$m \in \left(-\frac{a}{2}, \frac{a}{2}\right)$$

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

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

$$p = \frac{q-a}{q} = \frac{2}{q}$$

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

$$x^2 - 1x + \frac{1}{q} = 0$$

$$x^2 - \Delta x + m + 1 = 0$$

$$a < b$$

$$s = \frac{\Delta}{2} = 1$$

$$x^2 + 3x = 1$$

$$m?$$

$$p = \frac{m+1}{2}$$

$$\Delta m + 14$$

$$x^2 + 2x + 3x - 3x = 1$$

$$\Delta = 4 - 4(1)(m+1)$$

$$x(x+3) + (2x-3x)$$

$$4 - 4m - 4 = -4m$$

s.a.m

$$x(14 - m - 1) + \left(-\sqrt{4 - 4m}\right)(2) = 14 - 2m - 2\sqrt{4 - 4m} = 14$$

$$19 - 2m = 2\sqrt{41 - 4m}$$

(1)  $2$

$$2m^2 + 20m - 45m = 2(41 - 4m)$$

$$2m^2 - 25m + 45 = 0$$

$$\div 5 \quad m^2 - 5m + 15 = 0$$

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

$$m = 2$$

$$S(x, y)$$

$$f(x) = x^2 - 2x + 9$$

$$f(x) = x^2 - 2x + 9$$

(2)

$$u(m^2 - 2m + 9) + 9 = u m^2 - 2u m + 9u + 9$$

$$9u + 9 = 0$$

$$9u = -9$$

$$u = -1$$

$$-m^2 + 2m + 0 > 0$$

$$\begin{vmatrix} -1 & 0 \\ 1 & -2 \end{vmatrix} = 2$$

$$m^2 - 2m - 0 < 0$$

$$(m+1)(m-0) < 0$$

(-1)

(0)

$$m \in (-1, 0)$$

$$2x^2 - 4x + 9 = 0$$

$$S = \frac{V}{\alpha}$$

$$P = \frac{9B}{\alpha}$$

(4)

$$\frac{1}{\alpha} + \frac{1}{\beta} = ?$$

$$\frac{\beta + \alpha}{2\alpha\beta} = \frac{S}{P}$$

$$\frac{\frac{V}{\alpha}}{\frac{9B}{\alpha}} = \frac{V}{9B} = \frac{V}{4}$$

$$2 \times \frac{1}{\alpha} = \frac{9B}{\alpha}$$

$$2 = 9B$$

$$2 = 9B$$

$$B = \frac{2}{9}$$

$$9B = 2$$

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

$$S = -m$$

(5)

$$2x^2 - mx = 1$$

$$S = 0$$

$$P = -2m$$

$$B^2 + mB - 4m = 0 \rightarrow mB = 4m - B^2$$

$$2x^2 + Bx - 4m = 1$$

$$\begin{cases} m = 2 \\ m = -2 \end{cases} \rightarrow \Delta > 0 \checkmark$$

$$m = -2 \rightarrow \Delta < 0$$

$$m^2 + 2m - 4m = 1 \rightarrow m^2 - 2m - 1 = 0$$

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

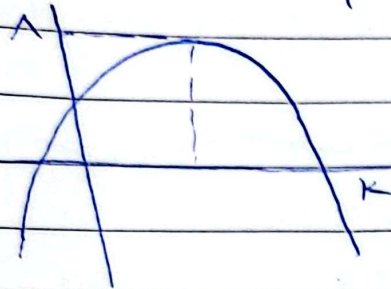
$$m = 2$$

$$m = -2$$

s.a.m

$$f(x) = mx^2 + rx + \frac{m}{r} + r$$

$$\frac{-\Delta}{2a} = \frac{r^2 m^2 + r^2 m - 14}{r^2 m} = \Delta \quad (1)$$



$$r^2 m^2 + r^2 m - 14 = r^2 m$$

$$r^2 m^2 - 2rm - 14 = 0$$

$$m^2 - 2m - \Delta = 0 \quad (m + r)(m - r) = 0$$

$$m < 0 \rightarrow m = -r$$

$$f(x) = -rx^2 + rx + 4$$

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

$$rx^2 - rx - 4 = 0$$

$$x^2 - x - r = 0$$

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

$$x = -1$$

$$x = r$$

$$\rightarrow \text{Cus } r$$

$$\frac{1}{a} + \frac{1}{b} = ? \quad \frac{a+b}{ab}$$

$$f(x) = a(x - r)^2 + 4$$

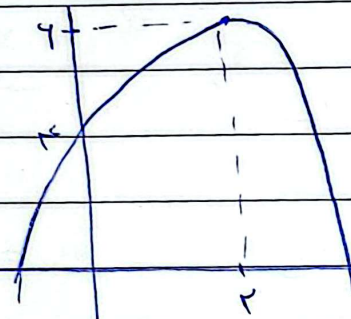
$$a(x^2 - 2rx + r^2) + 4$$

$$ax^2 - 2arx + ar^2 + 4$$

$$ra + 4 = r$$

$$ra = -r$$

$$a = -\frac{1}{r}$$



$$\frac{1}{r}ax^2 + rx + 2 \rightarrow \frac{5}{r} = \frac{r}{-1} = \boxed{\frac{1}{r}}$$

10

$$x^2 - (4a + 4)x + (4a^2 + 4a + 4) = 0$$

$$\underline{x=2} \rightarrow 4 - 8a - 8 + 4a^2 + 4a + 4 = 0$$

$$4a^2 - 4a - 1 = 0 \rightarrow \begin{cases} a = 1 \\ a = -\frac{1}{4} \end{cases}$$

$$\begin{aligned} a = 1 & \rightarrow x^2 - 8x + 12 = 0 & (x-2)(x-6) = 0 & \rightarrow \begin{cases} x=2 \\ x=6 \end{cases} \\ a = -\frac{1}{4} & \rightarrow x^2 - \frac{7}{2}x + \frac{15}{4} = 0 & (x-2)(x-\frac{3}{2}) = 0 & \end{aligned}$$

$$\begin{cases} x=2 \\ x=\frac{3}{2} \end{cases}$$