

حل المسألة

المسألة

19, 20

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

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

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

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

$$2a - 1 = -1$$

$$2a = 0 \quad a = 0$$

$$a = \frac{-1 \pm \sqrt{2}}{-\frac{1}{x}} \quad \begin{cases} n = -1 \\ m = 4 \end{cases}$$

$f(x) = mx^2 - 2x + m$ $\begin{matrix} x & x_1 & x_2 \\ f(x) & - & + & - \end{matrix}$ (6)

من حيث $m < 0$

$\Delta > 0 \rightarrow 4 < 4m^2 \rightarrow 2m^2 < 1 \rightarrow m^2 < \frac{1}{2} \rightarrow -\frac{1}{\sqrt{2}} < m < \frac{1}{\sqrt{2}}$

$m \in \left(-\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$

$\frac{1-\sqrt{2}}{2}, \frac{1+\sqrt{2}}{2} \rightarrow s = \frac{1-\sqrt{2} + 1+\sqrt{2}}{2} = \frac{2}{2} = 1$ (7)

$p = \frac{1-2}{2} = -\frac{1}{2}$ (1, 2)

$ax^2 - 5x + p = 0$
 $ax^2 - 1x + \frac{1}{2} = 0$
 $\times 2 \rightarrow 2ax^2 - 2x + 1 = 0$

$2ax^2 - \lambda x + m + 1 = 0$ $\Delta < 0 \rightarrow s = \frac{\lambda}{2} = 2$ (8)

$2a^2 + 3^2 = 14$ $m?$ (9)

$2a^2 + 2^2 + 3^2 - 3^2 = 14$ $\Delta = 42 - 14(m+1)$

$2(a^2 + 3^2) + (2^2 - 3^2)$ $42 - \lambda m - 14 = -\lambda m + 28$ s.a.m

$2(14 - m - 1) + \left(-\frac{\sqrt{28 - \lambda m}}{2}\right)(2)^2 = 28 - 2m - 2\sqrt{28 - \lambda m} = 14$

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

(1) 2

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

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

$$\div 5 \quad m^2 - 5m + 14 = 0$$

$$(m-2)(m-7) = 0$$

$$m = 2$$

$$S(x, y)$$

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

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

(2)

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

$$2u + 9 = 0$$

$$2u = -9$$

$$u = -4.5$$

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

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

(5)

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

$$(m+1)(m-2) < 0$$

(-1)

(2)

$$m \in (-1, 2)$$

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

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

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

(4)

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

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

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

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

(5)

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

$$2 = 9B$$

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

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

$$9B = 2$$

$$\alpha^2 + m\alpha - 2m = 0$$

$$\rightarrow S = -m$$

$$S = -m = -1$$

(1, 1/2)

(7)

$$\alpha^2 - m\beta = 1$$

$$S = 0$$

$$P = -2m$$

$$\begin{cases} \beta^2 + m\beta - 2m = 0 \\ \alpha^2 + \beta^2 - 2m = 1 \end{cases}$$

$$m\beta = 2m - \beta^2$$

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

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

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

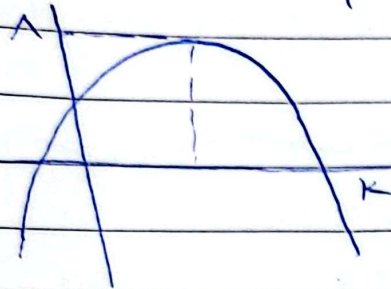
$$m = 2$$

$$m = -2$$

s.a.m

$$f(x) = mx^2 + rx + \frac{m}{r} + 4$$

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



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

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

$$m^2 - 2m - 14 = 0 \quad (m+2)(m-7) = 0$$

$$m < 0 \rightarrow m = -7$$

$$f(x) = -7x^2 + rx + 4$$

$$-7x^2 + rx + 4 = 0$$

$$7x^2 - rx - 4 = 0$$

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

$$(x+1)(x-3) = 0$$

$$x = -1$$

$$x = 3$$

$$\rightarrow \text{Ciklo}$$

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

$$f(x) = a(x-1)^2 + 4$$

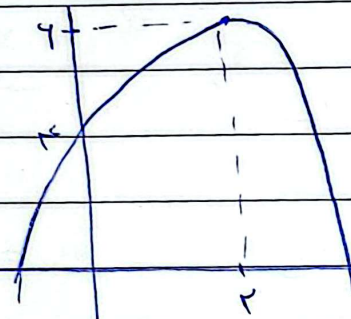
$$a(x^2 - 2x + 1) + 4$$

$$ax^2 - 2ax + a + 4$$

$$4a + 4 = 4$$

$$4a = 0$$

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



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

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

(10)

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

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

(5)

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

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