

Subject

Year. Mont. Day. () ۲۵ دسمبر پنجشنبہ - بلیف ۲۵

ا) $y = 3x^2 - 2x \sim a > 0$ ازناصہ ۱ و ۲ بی نذر

① ۲

$\frac{-b}{2a} = \frac{-(-2)}{2 \times 3} = \frac{2}{6} = \frac{1}{3}$ $\sim x > 0$
 ازناصہ ۴ بی نذر $\sim y < 0$

$\frac{4ac - b^2}{4a} = \frac{4 \times 3 \times 0 - (-2)^2}{4 \times 3} = \frac{0 - 4}{12} = \frac{-4}{12} = \frac{-1}{3}$

ازناصہ ۳ بی نذر.

ب) $y = -x^2 + 4x \sim a < 0$ ازناصہ ۳ و ۴ بی نذر

$\frac{-b}{2a} = \frac{-4}{2(-1)} = \frac{-4}{-2} = 2$ $\sim x > 0$
 ازناصہ ۱ بی نذر $\sim y > 0$

$\frac{4ac - b^2}{4a} = \frac{4(-1) \times 0 - 4^2}{4(-1)} = \frac{0 - 16}{-4} = \frac{-16}{-4} = 4$

ازناصہ ۲ بی نذر.

ا) $y = 2x^2 - 5x + 2 \sim a > 0$ ازناصہ ۱ و ۲ بی نذر

② ۲

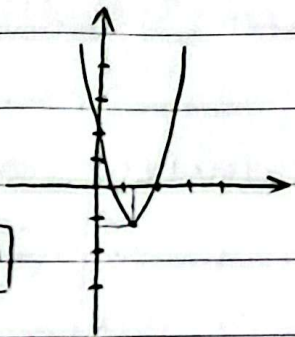
$\frac{-b}{2a} = \frac{-(-5)}{2 \times 2} = \frac{5}{4}$ $\sim x > 0$
 ازناصہ ۴ بی نذر $\sim y < 0$

$\frac{4ac - b^2}{4a} = \frac{4 \times 2 \times 2 - (-5)^2}{4 \times 2} = \frac{16 - 25}{8} = \frac{-9}{8}$

$b^2 - 4ac = (-5)^2 - 4 \times 2 \times 2 = 25 - 16 = 9 \rightarrow \sqrt{9} = 3$

$\frac{5 \pm 3}{4} \rightarrow \frac{8}{4} = 2, \frac{2}{4} = \frac{1}{2}$

ازناصہ ۱ و ۲ و ۴ بی نذر



ب) $y = -x^2 + 4x - 1 \sim a < 0$ ازناصہ ۳ و ۴ بی نذر

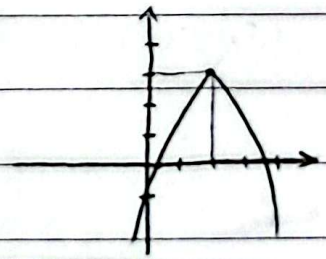
$\frac{-b}{2a} = \frac{-4}{2(-1)} = \frac{-4}{-2} = 2$ $\sim x > 0$
 ازناصہ ۱ بی نذر $\sim y > 0$

$\frac{4ac - b^2}{4a} = \frac{4(-1)(-1) - 4^2}{4(-1)} = \frac{4 - 16}{-4} = \frac{-12}{-4} = 3$

$b^2 - 4ac = 16 - 4(-1)(-1) = 16 - 4 = 12$

$\frac{-4 \pm \sqrt{12}}{-2} = 2 \pm \sqrt{3} = 2 \pm 1.7 \sim 3.7, 0.3$

ازناصہ ۱ و ۳ و ۴ بی نذر.



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$$x^2 - x - 3 = 0 \rightarrow \frac{-b}{a} = \frac{-(-1)}{1} = \frac{1}{1} = 1$$

$$\hookrightarrow \frac{c}{a} = \frac{-3}{1} = -3$$

$$\hookrightarrow \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{(-1)^2 - 4 \times 1 \times (-3)}}{1} = \frac{\sqrt{1+12}}{1} = \sqrt{13}$$

$$\text{w1) } \frac{\alpha + \beta}{\alpha - \beta} = \frac{1}{\sqrt{13}} = \frac{\sqrt{13}}{13}$$

$$\text{1) } \alpha^2 + \beta^2 \rightarrow (\alpha + \beta)^2 - 2\alpha\beta = 1^2 - 2(-3) = 1 + 6 = 7$$

$$\text{2) } \alpha^3 + \beta^3 \rightarrow (\alpha + \beta)^3 = \alpha^3 + 3\alpha^2\beta + 3\alpha\beta^2 + \beta^3$$

$$\alpha^3 + \beta^3 = (\alpha + \beta)^3 - 3\alpha\beta(\alpha + \beta) = 1^3 - 3(-3)(1) = 1 + 9 = 10$$

$$\text{3) } \alpha^4 - \beta^4 \rightarrow (\alpha - \beta)^4 = \alpha^4 - 4\alpha^3\beta + 6\alpha^2\beta^2 - 4\alpha\beta^3 + \beta^4$$

$$\alpha^4 - \beta^4 = (\alpha - \beta)^4 + 4\alpha^3\beta - 6\alpha^2\beta^2 - 4\alpha\beta^3 = (\alpha - \beta)^4 + 4\alpha\beta(\alpha - \beta)$$

$$= (\sqrt{13})^4 + 4(-3)(\sqrt{13}) = 169\sqrt{13} - 12\sqrt{13} = 157\sqrt{13}$$

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

$$\text{Für } x=0 \rightarrow (x-2)^2 = x^2 - 4x + 4 \rightarrow a = 4$$

$$\text{Für } x=2 \rightarrow b^2 - 4ac = (-a)^2 - 4 \times 1 \times a = a^2 - 4a < 0 \quad (\Delta < 0)$$

$$\frac{a(a-4) < 0}{0 \quad 4} \rightarrow \begin{array}{c} | \quad \cdot \quad \cdot \quad \cdot \\ + \quad | \quad - \quad | \quad + \\ \hline \end{array} \rightarrow (0, 4)$$

$$(0, 4) \cup \{4\} = [0, 4]$$

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$$r^2 x^r - 12x - a = 0 \rightarrow \frac{-(-12)}{r} = \frac{12}{r} = r \rightarrow \frac{-a}{r}$$

(3) (5)

$$r^2 \alpha^r + \beta^r - r \alpha \beta = V \rightarrow \alpha^r + \beta^r + \alpha^r - r \alpha \beta = V$$

$$\alpha^r + \beta^r \rightarrow (\alpha + \beta)^r - r \alpha \beta = r^r - r \left(\frac{-a}{r} \right) = 14 + \frac{r}{r} a$$

$$r^2 \alpha^r - 12 \alpha - a = 0 \rightarrow \frac{r^2 \alpha^r}{r} - \frac{12 \alpha}{r} = \frac{a}{r} \rightarrow \alpha^r - r \alpha = \frac{a}{r}$$

$$14 + \frac{r}{r} a + \frac{1}{r} a = 14 + a = V \rightarrow a = -9$$

$$r^2 x^r - 12x + 9 = 0 \rightarrow x^r - 4x + 3 = 0 \rightarrow (x-1)(x-3) = 0$$

$$\frac{-9}{r} = \boxed{-12}$$

مميز

$$V - r a + r a + r^3 = \frac{1}{r} - a \rightarrow \omega^r = (a, r)$$

(3) (4)

$$V - r a \geq 1 \rightarrow 4 \geq r a \rightarrow r \geq a, a - r \geq 1 \rightarrow a \geq r, r a + r^3 \geq 1 \rightarrow a \geq -1$$

$$\rightarrow a = r \rightarrow (1, 1), (9, 1)$$

$$y = a(x - a)^r + r \rightarrow 1 = a(1 - a)^r + r \rightarrow 1 = a(-r)^r + r$$

$$1 - r = 14a \rightarrow -r = 14a \rightarrow a = \frac{-r}{14} = -\frac{1}{14} \rightarrow y = -\frac{1}{14} (x - a)^r + r$$

$$y = -\frac{1}{14} (x^r + r a - 14x) + r = -\frac{1}{14} x^r + \frac{1}{14} x - \frac{r a}{14} + r \rightarrow -\frac{r a}{14} + \frac{r r}{14} = -\frac{1}{14}$$

$$\rightarrow \boxed{\frac{1}{14}}$$

$$a x^r - a x - b = 0 \rightarrow \frac{-(-a)}{r} = \frac{a}{r} = 1 \rightarrow \frac{-b}{r}$$

(3) (5)

$$r^2 \beta^r + r^2 \alpha^r - r \beta = 14 \rightarrow r^2 \beta^r + \alpha^r - \beta = \frac{14}{r} \rightarrow \beta^r + \alpha^r + \beta^r - \beta = \frac{14}{r}$$

$$\beta^r + \alpha^r = (\alpha + \beta)^r - r \alpha \beta = 1^r - r \left(\frac{-b}{r} \right) = 1 + \frac{r b}{a}$$

$$a \beta^r - a \beta - b = 0 \rightarrow a \beta^r - a \beta = b \rightarrow \beta^r - \beta = \frac{b}{a}$$

$$1 + \frac{r b}{a} + \frac{b}{a} = 1 + \frac{r b}{a} = \frac{14}{r} \rightarrow \frac{r b}{a} = \frac{14 - r}{r} = \frac{-r}{r} \rightarrow \frac{b}{a} = -\frac{1}{r} \rightarrow b = -\frac{a}{r}$$

$$b^r - r a c = a^r - r a (-b) = a^r + r a b = a^r + r a \left(-\frac{a}{r} \right) = a^r - \frac{1}{a} a^r = \frac{r}{a} a^r$$

$$\frac{\sqrt{\frac{r}{a} a^r}}{|a|} = \frac{r |a|}{\sqrt{a}} = \frac{r}{\sqrt{a}} = \frac{r \sqrt{a}}{a} \rightarrow \boxed{\frac{r}{\sqrt{a}} = \frac{r \sqrt{a}}{a}}$$

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$$\frac{-\Delta + 1}{r} = \frac{-r}{r} = -r \rightarrow (-r = -\frac{1}{p}) \text{ or } \frac{1}{p}$$

①

$$y = ax^r + bx + \frac{r}{p} \rightarrow y = ax^r + rax + \frac{r}{p}$$

$$\frac{-b}{ra} = -r \rightarrow b = ra \rightarrow r \times \frac{1}{p} = r$$

$$\frac{fac - b^r}{fa} = \frac{r \times a \times \frac{r}{p} - 1^r a^r}{fa} = \frac{\frac{r}{p} - fa}{fa} = -\frac{1}{p} \rightarrow \frac{r}{p} + \frac{1}{p} = fa \rightarrow r = fa \rightarrow a = \frac{r}{f}$$

$$y = \frac{1}{p}x^r + rx + \frac{r}{p} \xrightarrow{(1, \beta)} \beta = \frac{1}{p} \times 1^r + r \times 1 + \frac{r}{p} = \frac{1}{p} + r + \frac{r}{p} = \frac{r}{p} + r$$

$$= r + r = r \rightarrow \boxed{\beta = r}$$

②

$$x^r + 4x + a = 0 \quad \alpha < \beta < 0 \quad \rightarrow \frac{-4}{1} = -4 : r?$$

$$r\alpha^r + r\beta^r = 12\sqrt{r} + 12a \quad \rightarrow \frac{a}{1} = a : \text{or } r?$$

$$\alpha^r + \beta^r = (\alpha + \beta)^r - r\alpha\beta = (-4)^r - r\alpha = 12\sqrt{r} - r\alpha$$

$$r\alpha^r + r\beta^r = r(12\sqrt{r} - r\alpha) = 12\sqrt{r} - r\alpha$$

$$b^r - fac = 12\sqrt{r} - r \times 1 \times a = 12\sqrt{r} - r\alpha$$

$$\frac{-4 \pm \sqrt{16 - fa}}{r} = \frac{-4 \pm r\sqrt{9 - a}}{r} = -\frac{4}{r} \pm \sqrt{9 - a} \rightarrow \alpha = -\frac{4}{r} - \sqrt{9 - a}$$

$$\alpha^r = \frac{4}{r} + |9 - a| + 4\sqrt{9 - a} = \frac{4}{r} + 9 - a + 4\sqrt{9 - a} = 12\sqrt{r} - r\alpha$$

$$12\sqrt{r} - r\alpha + 12\sqrt{r} - r\alpha + 4\sqrt{9 - a} = 12\sqrt{r} - r\alpha + 4\sqrt{9 - a} = 12\sqrt{r} + 12\sqrt{r}$$

$$12\sqrt{r} - r\alpha + 4\sqrt{9 - a} = 12\sqrt{r}$$

$$\alpha = 1 \quad \rightarrow 9(12\sqrt{r}) = 4(12\sqrt{r}) \quad \rightarrow \boxed{a = 1}$$

$$12\sqrt{r} - r\alpha + 4\sqrt{9 - 1} = 4\sqrt{9 - 1} = 4(12\sqrt{r}) = 12\sqrt{r}$$

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$$r^4 x^p - (m + 1r) x + 1 = 0 \quad \rightarrow \quad \frac{1}{r^4} \quad \frac{m+1r}{r^4}$$

$$\sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} = \omega \quad \rightarrow \quad \left(\sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} \right)^p = \omega^p \quad \rightarrow \quad \frac{1}{\alpha} + \frac{1}{\beta} + r \sqrt{\frac{1}{\alpha\beta}} =$$

$$\frac{\beta + \alpha}{\alpha\beta} + r \sqrt{\frac{1}{\alpha\beta}} = \frac{\frac{m+1r}{r^4}}{\frac{1}{r^4}} + r \sqrt{\frac{1}{\frac{1}{r^4}}} = m + 1r + r \sqrt{r^4}$$

$$m + 1r + 1r = r\omega \quad \rightarrow \quad m + 1r = r\omega \quad \rightarrow \quad m = -1$$

$$m x^p + r x + r = 0 \quad \rightarrow \quad \frac{r}{m} = \frac{r}{-1} = \boxed{-r}$$