

سوال

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

$$x_1 = 3x_2 \rightarrow 3x_2 a x_2 \rightarrow 3x_2^2 = \frac{1}{3} \rightarrow x_2^2 = \frac{1}{9} \rightarrow x_2 = \pm \frac{1}{3}$$

$$x_2 = +\frac{1}{3} \rightarrow x_1 = +\frac{1}{3} \rightarrow \frac{1}{3} + \frac{1}{3} = \frac{2}{3} \rightarrow \frac{1}{3} + \frac{1}{3} = \frac{2}{3} \rightarrow a = \frac{2}{3}$$

$$x_2 = -\frac{1}{3} \rightarrow x_1 = -\frac{1}{3} \rightarrow -\frac{1}{3} - \frac{1}{3} = -\frac{2}{3} \rightarrow \frac{-1}{3} - \frac{-1}{3} = -\frac{2}{3} \rightarrow a = -\frac{2}{3} \Rightarrow -\frac{2}{3} + \frac{2}{3} = 0$$

سوال

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

$$\rightarrow \frac{1}{\sqrt{a}} + \frac{1}{\sqrt{b}} = \frac{1}{\sqrt{ab}} \rightarrow \frac{\sqrt{a} + \sqrt{b}}{\sqrt{ab}} = \frac{1}{\sqrt{ab}} \rightarrow \sqrt{a} + \sqrt{b} = \frac{1}{\sqrt{ab}}$$

$$\rightarrow (\sqrt{a} + \sqrt{b})^2 = \frac{1}{ab} \rightarrow a + b + 2\sqrt{ab} = \frac{1}{ab} \rightarrow a + b + \frac{1}{\sqrt{ab}} = \frac{1}{\sqrt{ab}}$$

$$\rightarrow a + b = \frac{1}{\sqrt{ab}} \rightarrow \frac{m+1}{3} = \frac{1}{\sqrt{ab}} \rightarrow m = -1$$

$$\rightarrow -x^2 + 3x + 1 \rightarrow \frac{1}{-1} = \boxed{-1}$$

سوال

$$x^2 + kx^2 - ax - 1 = 0$$

$$a + b = 1, ab = -1 \rightarrow b = -\frac{1}{a} \rightarrow a + \frac{1}{a} = 1 \rightarrow \frac{a^2 - 1}{a} = 1$$

$$\rightarrow a^2 - 1 = a \rightarrow a^2 - a - 1 = 0 \rightarrow (a-1)(a+1) = 0 \rightarrow a = 1$$

$$\rightarrow a = 1, b = -1$$

$$\rightarrow a = 1, b = -1 \rightarrow (x^2 + kx^2 - ax - 1) = 0 \rightarrow 3x^2 - x - 1 = 0 \rightarrow 1 + k = 0$$

$$\boxed{k = -1}$$

سوال

$$2a^2 + 3b^2 - a^2 - 12\sqrt{a} + 12 \rightarrow 2(a^2 + 3b^2) - a^2 - 12\sqrt{a} + 12 \rightarrow 2(a+b)^2 - 12\sqrt{a} + 12$$

$$\rightarrow \boxed{A = 12 - 12a}$$

Scanned with

$$a = -\frac{4 - \sqrt{34 - 8a}}{2} \Rightarrow a^2 = \frac{16 + 34 - 8a + 1\sqrt{34 - 8a}}{2}$$

$$\rightarrow \frac{12\sqrt{34 - 8a}}{2} = 12\sqrt{2} \Rightarrow \boxed{a = 1}$$

$$x^2 = + \quad x^2 - 12x^2 - a = 0$$

سوال

$$+ 2 - 12 + - 2 \rightarrow + = \frac{12 + \sqrt{49}}{2} \rightarrow x_1 = \frac{\sqrt{12 + 49}}{2}$$

$$\rightarrow x_2 = \frac{\sqrt{12 - 49}}{2}$$

$$\rightarrow P = x_1 x_2 = -\frac{\sqrt{(12+49)2}}{2}$$

$$\rightarrow P^2 = \frac{2(12+49)}{2}$$

$$\rightarrow \left(\frac{12 + \sqrt{49}}{2}\right)^2 = \frac{144 + 49 + 12\sqrt{49}}{2} = \boxed{129 + 7\sqrt{49}}$$

$$a + B = a' + B' + 1 \Rightarrow \frac{a}{2} = -\frac{a}{2a} + 1 \Rightarrow \frac{1}{2} = a \Rightarrow a = 1$$

سوال

$$\rightarrow 2x^2 + x - 4 \rightarrow a' + B' = -\frac{10}{2} \Rightarrow a + B = -\frac{10}{2} = -5$$

$$\left(\frac{ab}{2}\right) = \left(-\frac{4}{2}\right) = -2$$

$$2a^2 + 2B^2 + 2B^2 - 2B = 12 \rightarrow 2(a^2 + B^2) + 2B^2 - 2B = 12$$

سوال

$$\rightarrow 8 = \frac{4a}{a} = 1 \Rightarrow P = -\frac{b}{a} \rightarrow aB^2 - aB - b = 0 \rightarrow a(B^2 - B) = b$$

$$\rightarrow B^2 - B = \frac{b}{a} \rightarrow 2(s^2 - 2P) + 2(B^2 - B) = 12 \rightarrow 2\left(1 + \frac{b}{a}\right) = 12$$

$$\rightarrow 2 + \frac{2b}{a} + 2 \cdot \frac{b}{a} = 12 \rightarrow \frac{4b}{a} = 10 \rightarrow \frac{b}{a} = \frac{5}{2}$$

$$\frac{\sqrt{a}}{|a|} = \frac{\sqrt{4a^2 - 4a(-b)}}{|a|} = \frac{\sqrt{4a^2 + 4ab}}{|a|} \rightarrow \frac{\sqrt{1 + \frac{4b}{a}}}{\frac{1}{|a|}} = \boxed{\frac{1 + \frac{4b}{a}}{\sqrt{2}}}$$

Scanned with

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

← سوال

$$x_1 = K \rightarrow rK + r = a+1, a = rK + rK$$

$$x_r = K + r \quad \ominus \rightarrow r - K^r = 1, K^r = 1, K = \pm 1 \rightarrow +1 \checkmark$$

$$\rightarrow x_1 = 1, x_r = r$$

$$a = r$$

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

$$x_1' = rK' \rightarrow rK' + r = r+1 \rightarrow rK' + r = 1 \rightarrow rK' = 1 - r \rightarrow K' = \frac{1-r}{r}$$

$$x_r' = rK' + r \quad x_1 = 1, x_r = r$$

$$\rightarrow r+1 = r, \text{ ya } r = 1 \rightarrow \frac{r}{1} = r = \boxed{21}$$

$$x^r + x - 1 - m^r \rightarrow \Delta \geq 0 \rightarrow b^2 - 4ac \geq 0$$

← سوال

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

$$\rightarrow a^r + b^r = (a+b)^r - r a b \rightarrow (1)^r - r(-1) = \boxed{r}$$

$$C x^r + d x + e = y \rightarrow r a + r d + e = r a - d a + e$$

← سوال

$$\rightarrow r a = 140 \rightarrow d = r a$$

$$\rightarrow C x^r + d x + e \rightarrow \frac{d}{x^r} = \frac{-r a}{r a} = -1 \rightarrow C - r a + e = 1 \rightarrow e - C = 1$$

$$\rightarrow (a+b)^r - r a b = 1 - r e = a^r \rightarrow \frac{e}{a} = -\frac{1}{r} \rightarrow r e = -C \rightarrow$$

$$\rightarrow r e = 1 \rightarrow \boxed{e = \frac{1}{r} = \frac{1}{21}}$$