

کروه: دهم ریاضی

سری:

نام و نام خانوادگی: آناهیتا ترک تهرانی

$$x^r - 5x + 2 = 0 \quad \beta^r - 5\beta + 2 = 0 \Rightarrow \beta^r = 5\beta - 2$$

$$\begin{cases} \alpha + \beta = 5 \Rightarrow \alpha = 5 - \beta \\ \alpha\beta = 2 \end{cases}$$

$$\frac{\alpha^r + \beta^r}{\alpha\beta^r} = \frac{(5 - \beta)^r + (5\beta - 2)^r}{2\beta^r} = \frac{4\sqrt{5}\beta - 19}{2\beta^r - 1}$$

$$\alpha(5\beta - 2) = 2\alpha\beta - 1$$

$$\frac{19(2\alpha\beta - 1)}{2\alpha\beta - 1} = 19$$

$$10\alpha\beta - 4 = 19$$

$$\beta^5 = \beta \times \beta^4 = \beta(10\alpha\beta - 4) = 10\alpha\beta^2 - 4\beta = 4\sqrt{5}\beta - 21$$

$$\beta^5 \Rightarrow \beta^r = 5\beta - 2, \beta^r = \beta \times \beta^4, \beta(5\beta - 2) = 5\beta^2 - 2\beta = 4\sqrt{5}\beta - 21$$

$$\beta^5 = \beta \times \beta^4 = \beta(19\beta - 1) = 19\beta^2 - \beta$$

$$y = ax^r + bx + c$$

$$f(x) = x$$

$$(115, -4), (3, -4)$$

$$\text{مجموع صفرها} = a + \beta = 2 \times x_v$$

$$x_v = -\frac{b}{ra} \Rightarrow a + \beta = -\frac{b}{a}$$

$$x_v = \frac{x_1 + x_2}{2} \Rightarrow x_v = \frac{3 + (-115)}{2} = -56$$

$$x^r + rkx + a = 0$$

$$(a - \beta)^r = (a + \beta)^r - 4a\beta \Rightarrow$$

$$a + \beta = -\frac{rk}{1} = -rk$$

$$(a - \beta)^r = (-rk)^r - \frac{4 \times a}{-r}$$

$$a\beta = a$$

$$|a - \beta| = \frac{4}{r}k \Rightarrow (a - \beta)^r = \left(\frac{4}{r}k\right)^r = \frac{14}{9}k^r$$

$$\frac{14}{9}k^r = 4k^r - 20 \Rightarrow 4k^r = \frac{14}{9}k^r \Rightarrow k^r = 9$$

$$x_v = \frac{3 + (-5)}{2} = -1 \Rightarrow \text{منشعبات (مستقیم) : } (-1, 1)$$

$$y = \frac{1}{x}$$

$$(x - x_v)^r = f_p(y - y_v) \Rightarrow (x - (-1))^r = f_p(y - 1) \Rightarrow (x + 1)^r = f_p(y - 1)$$

$$(x + 1)^r = f_p(y - 1) \Rightarrow 14 = f_p(y - 1) \Rightarrow y - 1 = \frac{4}{p}$$

$$x + 1 = \pm \sqrt{-4p} \Rightarrow \alpha = -1 + \sqrt{-4p}, \beta = -1 - \sqrt{-4p}$$

$$x^r + rx + 1 + fp = 0 \Rightarrow \alpha + \beta = -r, \alpha\beta = 1 + fp$$

$$\alpha^r + \beta^r = a \Rightarrow a = (-r)^r - 2(1 + fp) \Rightarrow 14p = r - a \Rightarrow p = -\frac{r}{4} / y - 1 = \frac{4}{p} = \frac{4}{-\frac{r}{4}} \Rightarrow y = -\frac{16}{r} \Rightarrow A(15, -\frac{16}{r}), B(-5, -\frac{16}{r})$$

$$\Delta \geq 0 \Rightarrow 25 + 4m \geq 0 \Rightarrow m \geq -\frac{25}{4} \xrightarrow{\text{مربع}} m \geq -4 \quad ①$$

$$x = \frac{5 \pm \sqrt{25 + 4m}}{2}$$

$$x_v = -\frac{b}{ra} = 215$$

$$② 25 + 4m = 4r \Rightarrow \text{دلتای مربع کامل باشد}$$

$$f\left(\frac{9}{r}\right) = -\left(\frac{9}{r}\right)^r + 5\left(\frac{9}{r}\right) + m \Rightarrow f\left(\frac{9}{r}\right) = \frac{9}{r} + m \Rightarrow \frac{9}{r} + m \leq 0 \Rightarrow m \leq -\frac{9}{r} \xrightarrow{\text{مربع}} m \leq -4 \quad ②$$

$$① m = -4 \Rightarrow 25 - 16 = 9 \quad \alpha = \frac{4}{r} = 2, \beta = \frac{9}{r} = 3 \quad ③ m = -4 \Rightarrow 25 - 16 = 9 \quad \alpha = 2, \beta = 3$$

$$④ m = -5 \Rightarrow 25 - 20 = 5 \quad \alpha = 2, \beta = 3$$

$$⑤ m = -4 \Rightarrow 25 - 16 = 9 \quad \alpha = 2, \beta = 3$$

$$y = mx^r - 12x + 5m - 1$$

$$\text{معامل: } y = a(x-h)^r + k \rightarrow (h, k), x = h \rightarrow \text{مختار}$$

$$a > 0 \Rightarrow m > 0 \Rightarrow k = 1$$

$$k = \frac{fac - b^r}{ra} \Rightarrow r = \frac{fm(\Delta m - 1) - 14f}{fm} \Rightarrow \Delta m = 20m^r - fm - 14f$$

$$\Rightarrow 20m^r - 12m - 14f = 0 \Rightarrow m = \frac{-(-r) \pm \sqrt{(-r)^r - 4 \times \Delta m - 14}}{2 \times \Delta}$$

$$\Rightarrow m = \frac{r \pm r_v}{10}$$

$$m_1 = \frac{r_0}{10} = r \checkmark$$

$$m_2 = \frac{-r_f}{10} = -r_1f \times \quad \text{مختار} = -\frac{b}{ra} = \frac{12}{9} = \boxed{r}$$

$$\alpha + \beta = -\frac{r(\alpha + 1)}{1} = -r(\alpha + 1) \quad (1)$$

$$\alpha\beta = ra - 1 \quad (2)$$

$$\alpha^r = \alpha/\beta \quad (3) \rightarrow \text{مختار}$$

$$\alpha^r = (1)^r = 1 \checkmark$$

$$\alpha\beta = (-r - \sqrt{r})(-r + \sqrt{r}) = 1 \checkmark$$

$$(1), (3) \rightarrow \alpha^r = ra - 1 \Rightarrow \alpha^r - ra + 1 = 0 \Rightarrow (\alpha - 1)^r = 0 \Rightarrow \alpha = 1$$

$$x^r + r(1+1)x + (r(1) - 1) = 0 \Rightarrow x^r + 2x + 1 = 0 \Rightarrow x = -r \pm \sqrt{r} \Rightarrow \alpha = -r - \sqrt{r}, \beta = -r + \sqrt{r}$$

$$\boxed{a = 1}$$

$$x^r - vx^r - a = 0 \Rightarrow y = x^r \Rightarrow y^r - vy - a = 0 \Rightarrow y = \frac{v + \sqrt{49}}{r}, y_r = \frac{v - \sqrt{49}}{r}$$

$$y > 0 \Rightarrow x_{1,2} = \pm \sqrt{\frac{v + \sqrt{49}}{r}}$$

$$y_r = \frac{v - \sqrt{49}}{r} \Rightarrow x_1 = \sqrt{\frac{v + \sqrt{49}}{r}}, x_2 = -\sqrt{\frac{v + \sqrt{49}}{r}}$$

$$S = x_1 + x_2 = \left(\sqrt{\frac{v + \sqrt{49}}{r}}\right) + \left(-\sqrt{\frac{v + \sqrt{49}}{r}}\right) = 0 \quad P = x_1 \times x_2 = \left(\sqrt{\frac{v + \sqrt{49}}{r}}\right) \left(-\sqrt{\frac{v + \sqrt{49}}{r}}\right) = -\frac{v + \sqrt{49}}{r}$$

$$y = kx^r - fx - 9$$

$$x = -\frac{b}{ra} = \frac{r}{k}$$

$$y = k(x)^r - f(x) - 9 \Rightarrow y = k\left(\frac{r}{k}\right)^r - f\left(\frac{r}{k}\right) - 9$$

$$\Rightarrow y = -\frac{f}{k} - 9 \quad \text{معامل} = \left(\frac{r}{k}, -\frac{f}{k} - 9\right)$$

$$y = -fx - 9 \Rightarrow -\frac{f}{k} - 9 = -\frac{r}{k} - 9 \Rightarrow k = r$$

$$y = -\frac{f}{k} - 9 \quad k = r \rightarrow y = -\frac{f}{r} - 9 \Rightarrow$$

$$\boxed{y = -1} \rightarrow \text{مختار}$$

$$-mx^r + mx + 1 = -m - x \Rightarrow -mx^r + (m+1)x + (1+m) = 0 \quad \Delta < 0 \rightarrow \Delta = b^r - fac \Rightarrow$$

$$\Delta = (m+1)^r - f(-m)(1+m) \Rightarrow (m+1)^r + fm(1+m) < 0 \Rightarrow \Delta m^r + 4m + 1 < 0 \Rightarrow$$

$$\Delta = 4^r - f \times \Delta \times 1 = 34 - 20 = 14 \Rightarrow m = \frac{-4 \pm \sqrt{14}}{2 \times \Delta} \Rightarrow m_1 = -0.12, m_2 = -1$$

$$-1 < m < -0.12 \rightarrow \text{مختار}$$