

برگه امتحانی

تاریخ امتحان:

عالم نوشتار: ۲۰

دستگاه:
مدرسه: امتحانی
دبیرستان:

نام: ایرجین
نام خانوادگی: مازنیان

شماره تکلیف: ۲۲

سوال ۱

$$x^2 - 8x + 1 = 0 \Rightarrow \alpha + \beta = 8 = -\frac{b}{a} = 8 \text{ و } \rho = \frac{c}{a} = 1 \Rightarrow \beta = \frac{1}{\alpha}$$

$$\Rightarrow \frac{\alpha + \beta^8}{8\beta^8} = \frac{\alpha}{8(\frac{1}{\alpha})^8} + \frac{\beta^8}{8} \Rightarrow \frac{\alpha^9}{8 \times \frac{1}{\alpha^8}} \rightarrow \frac{\alpha^9}{8} + \frac{\beta^8}{8} = \frac{1}{8}(\alpha^9 + \beta^8) =$$

$$\frac{1}{8}(\alpha^9 - 8\rho\alpha) = \frac{1}{8}(\alpha^9 - 8(1)(8)) = \frac{1}{8} \times 98 = 19 \checkmark$$

سوال ۲

$$(39-4) \Rightarrow 4a + 3b + c = -4$$

$$(-\frac{1}{4}9-4) \Rightarrow a(\frac{9}{4}) + b(-\frac{1}{4}) + c = -4$$

$$\Rightarrow (94 - \frac{9}{4}a) + (3b + \frac{3}{4}b) + (c-c) = 0$$

$$\Rightarrow 3a + 2b = 0 \quad \Rightarrow \frac{b}{a} = -\frac{3}{2} = -\frac{\frac{3}{2}a}{a} = -\frac{3}{2} = 1,5 \checkmark$$

سوال ۳

$$|\frac{K}{3}| = \frac{\sqrt{4K^2 - 20}}{1} \Leftrightarrow |K-B| = \frac{\sqrt{4}}{|A|} \checkmark$$

$$|K| = 3\sqrt{4K^2 - 20} \rightarrow 16K^2 = 9(4K^2 - 20) \rightarrow 16K^2 = 36K^2 - 180 \rightarrow 180 = 20K^2$$

$$\rightarrow 9 = K^2 \Rightarrow K = \pm 3 \rightarrow \left[\frac{K^2}{2}\right] = \left[\frac{9}{2}\right] = \left[\frac{4}{2}\right] = 2 \checkmark$$

سوال ۴

$$A = (3, 4) \quad B = (-8, 5) \quad \alpha, \beta \text{ ریشه ها}$$

$$\frac{\alpha + \beta}{2} = \frac{-8 + 3}{2} = -\frac{5}{2} \rightarrow \alpha + \beta = -5 \Rightarrow \rho = \frac{-5}{2} = -\frac{5}{2}$$

$$\alpha^2 + \beta^2 = 8 \Rightarrow (\alpha + \beta)^2 - 2\alpha\beta = 8 \Rightarrow \alpha\beta = -\frac{1}{2}$$

$$y = \alpha(\alpha^2 + 2\alpha - \frac{1}{2}) = 1 \Rightarrow \alpha(1 - 2 - \frac{1}{2}) \rightarrow \alpha = -\frac{2}{3} \rightarrow y = -\frac{2}{3}(\alpha^2 + 2\alpha + (-\frac{1}{2}))$$

$$\rightarrow \alpha = 0 \rightarrow y = \frac{1}{3} \checkmark$$

سوال ۵

$$F(\frac{9}{4}) < 0 \Rightarrow -(\frac{9}{4})^2 + 8\frac{9}{4} + m < 0 \Rightarrow -\frac{81}{4} + \frac{72}{4} + m < 0$$

$$\rightarrow m < -\frac{9}{4} = -2,25 \quad \text{داده شده } \Delta > 0 \rightarrow 28 + 4m > 0 \rightarrow m > -\frac{28}{4} = -7, \quad \checkmark$$

$$-7,25 < m < -2,25 \Rightarrow m = -5, -6, -7, -8, -9 \checkmark$$

سوال ۶

$$\begin{aligned} & \Rightarrow \frac{-\Delta}{4a} = 2 \rightarrow -\Delta = 1a \rightarrow \Delta = -1a \rightarrow \Delta = 1m \\ & \rightarrow 144 - 4m(8m-1) \rightarrow -20m^2 + 4m + 144 = -1m \rightarrow -20m^2 + m + 145 = 0 \\ & \rightarrow -20m^2 + 3m + 145 = 0 \rightarrow m^2 + 3m - 110 = 0 \rightarrow (m+15)(m-12) = 0 \\ & \Rightarrow m_1 = \frac{-15}{-20} = 3/4 \quad m_2 = \frac{-12}{-20} = 3/5 \end{aligned}$$

زیر تابع می نیم دارد $\Rightarrow$ غنق ق

$$\Rightarrow m = \frac{-b}{2a} = \frac{-b}{2 \times m} \Rightarrow \frac{12}{2 \times 3} = 2$$

سوال ۷

اگر به ترتیب α و β بتوان تشکیل دایره مندرسی دهند

$$\alpha^2 = \alpha \times \beta = p = \frac{c}{a} = 2a-1 \Rightarrow \alpha^2 = 2a-1 \Rightarrow a=1$$

سوال ۸

$$\begin{aligned} & x^2 - 7x^2 - 8 = 0 \Rightarrow t^2 - 7t - 8 = 0 \Rightarrow x_1 = \sqrt{t} \text{ و } x_2 = -\sqrt{t} \\ & S = \sqrt{t} + (-\sqrt{t}) = 0 \text{ و } p = \sqrt{t} \times -\sqrt{t} = -t = -\sqrt{69} \end{aligned}$$

نکته: چون $t = x^2 \geq 0$ می تواند منفی باشد

$$2p^2 - 3sp + 2s = 2p^2 = 89 + 7\sqrt{69}$$

سوال ۹

$$\begin{aligned} & \text{ext} \mid x = \frac{y}{k} \\ & y = \frac{-\Delta}{4k} = \frac{-(16 + 24k)}{4k} = \frac{-16 - 24k}{4k} = \frac{-4 - 6k}{k} \\ & \Rightarrow \frac{-4 - 6k}{k} = \frac{-4 - 6k}{k} \Rightarrow -2k = -4 \Rightarrow k = 2 \\ & \Rightarrow y = \frac{-4}{2} = \frac{-4 - 6 \times 2}{2} = \frac{-4 - 12}{2} = \frac{-16}{2} = -8 \end{aligned}$$

سوال ۱۰

$$\begin{aligned} & y = -m_2x + m_2 + 1 \quad y = -m - x \\ & -m_2x + m_2 + 1 = -m - x \rightarrow m_2x - (m+1)x - (m+1) = 0 \\ & \Rightarrow \Delta < 0 \rightarrow (m+1)^2 + 4m(m+1) - 8m^2 + 8m + 1 < 0 \Rightarrow (m+1)(m+\frac{1}{8}) < 0 \\ & \Rightarrow -1 < m < -\frac{1}{8} \end{aligned}$$