

مدیریت آموزش و پرورش منطقه ۱۴
دبیرستان غیر دولتی پسرانه پیام غدیر
پایانی دوم ۹۶-۹۷
پاسخ نامه درس: حاجان

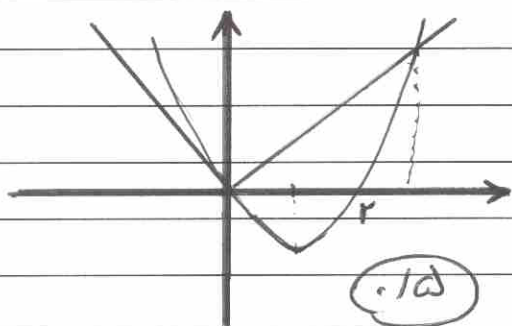
نام دبیر: آقای حیدری
تاریخ امتحان:
رشته تحصیلی: ریاضی

ساعت شروع امتحان: ۱۰ صبح



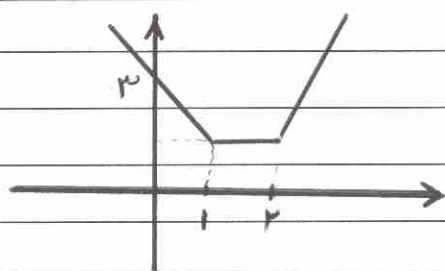
$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \dots + \frac{1}{2^n} \geq \frac{97}{100} \quad (0.5)$$

$$\Rightarrow \frac{\frac{1}{2}(1 - \frac{1}{2^n})}{1 - \frac{1}{2}} \geq \frac{97}{100} \Rightarrow 2^n \geq \frac{100}{3} \Rightarrow n_{\min} = 6 \quad (0.25)$$



$$x=0 \text{ و } x=3$$

(0.5)



(1.5)

$$AB \perp H(\varepsilon, 2) \quad m_{AB} = \frac{\varepsilon - 0}{2 - 2} = -1 \rightarrow \text{شیب عمود} = 1 \quad (0.25)$$

$$y = x - 2 \quad (0.5)$$

$$D_{f \circ g} = \left\{ \begin{array}{l} x \in D_g : x \neq -1 \quad (0.25) \\ g(x) \in D_f : \frac{2x}{x+1} \geq 1 \rightarrow \frac{x-1}{x+1} \geq 0 \rightarrow x \geq 1 \vee x < -1 \quad (0.5) \end{array} \right\} \quad D = \mathbb{R} - [-1, 1) \quad (0.25)$$



$$y = \frac{x}{rx+1} \leadsto rxy + y = x \leadsto x - rxy = y \quad (125)$$

-۶

$$\Rightarrow x = \frac{y}{1-ry} \Rightarrow f^{-1}(x) = \frac{x}{1-rx} \quad (125)$$

(125)

$$rf+g = \left\{ (1, 1), (-1, 5) \right\}$$

(125)

(125)

-۷

$$\log_r r^r x^r = a \Rightarrow r + \log_r r^r = a \Rightarrow \log_r r^r = a - r$$

(125)

(125)

$$\log_{r^r} r = \frac{1}{r} \log_r r = \frac{1}{r} \cdot \frac{r}{a-r}$$

(125)

(125)

-۸

$$\log(x+1)^r - \log(x-1) = \log 9 \rightarrow \log \frac{(x+1)^r}{x-1} = \log 9 \quad (125)$$

(125)

$$\Rightarrow \frac{(x+1)^r}{x-1} = 9 \rightarrow x^r - \sqrt{x+1} = 0 \quad x = 2, 5$$

(125)

-۹

$$\omega \frac{\log r}{\log \omega} = \omega \frac{\log r}{\log \omega} = r \quad (125)$$

(125)

-۱۰

$$\frac{\omega \pi}{r} = \frac{L_1}{l_0} \Rightarrow L_1 = \frac{\omega \cdot \pi}{r} = L_r \leadsto \theta_r = \frac{L_r}{r_r} = \frac{\omega \cdot \pi}{r_0} = \frac{\omega \pi}{9} \text{ rad}$$

(125)

(125)

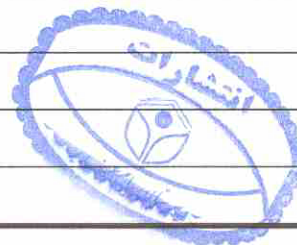
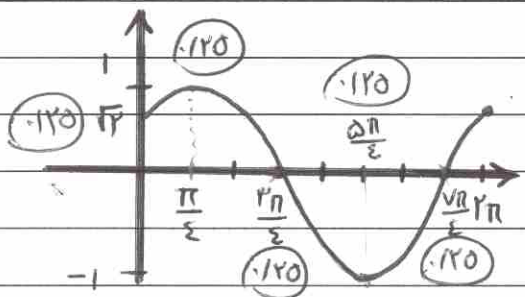
(125)

(125)

-۱۱



$$A = \frac{r \cos\left(\frac{\pi}{r} + \frac{\pi}{a}\right) + \sin\left(\pi + \frac{\pi}{a}\right)}{\cos\left(r\pi - \frac{\pi}{a}\right)} = \frac{-1 \sin \frac{\pi}{a} - \sin \frac{\pi}{a}}{-\cos \frac{\pi}{a}} = r \tan \frac{\pi}{a} = r_a$$



$$\frac{1 - \cos x}{\sin x} = \frac{r \sin \frac{x}{r}}{r \sin \frac{x}{r} \cos \frac{x}{r}} = \tan \frac{x}{r}$$

$$\left. \begin{aligned} \lim_{x \rightarrow r^+} ([rx] + a[x] + 1) &= r + a \\ \lim_{x \rightarrow r^-} ([rx] + a[x] + 1) &= r \end{aligned} \right\} \begin{aligned} r + a &= r \Rightarrow a = -1 \end{aligned}$$

$$\text{الف) } \lim_{x \rightarrow 1} \frac{\sqrt{x+r}-r}{x^r+x-r} \times \frac{\sqrt{x+r}+r}{\sqrt{x+r}+r} = \lim_{x \rightarrow 1} \frac{x-1}{(x-1)(x+r)(\sqrt{x+r}+r)} = \frac{1}{1^r}$$

$$\text{ب) } \lim_{x \rightarrow \frac{\pi}{r}^+} \frac{|\cos x|}{rx - \pi} = \lim_{t \rightarrow 0^+} \frac{|\cos(\frac{\pi}{r} + t)|}{rt} = \lim_{t \rightarrow 0^+} \frac{|\sin t|}{rt} = \lim_{t \rightarrow 0^+} \frac{\sin t}{rt} = \frac{1}{r}$$



ارائه سوال ۱۶ :

$$ع.) \lim_{x \rightarrow 0} \frac{1 - \cos^2 x}{x^2} = \lim_{x \rightarrow 0} \frac{\sin^2 x}{x^2} = \lim_{x \rightarrow 0} \left(\frac{\sin x}{x} \right)^2 = 1$$

(۱۲۵) (۱۲۵) (۱۲۵)

$$د.) \lim_{x \rightarrow 2} [-x^2 + 5x + 3] = [v^-] = 9$$

(۱۲۵) (۱۲۵)

- ۱۷

$$۱.) f(1) = a \quad (۱۲۵)$$

$$۲.) \begin{cases} \lim_{x \rightarrow 1^+} \frac{x^2 - 1}{x^2 - 1} = \lim_{x \rightarrow 1^+} \frac{(x-1)(x+1)}{(x-1)(x^2 + x + 1)} = \frac{2}{3} & a = \frac{2}{3} \quad (۱۵) \\ \lim_{x \rightarrow 1^-} b[-x] + 1 = -b + 1 & b = \frac{1}{3} \end{cases}$$

(۱۵) (۱۲۵)

