



سایت ویژه ریاضیات www.riazisara.ir

درسنامه ها و جزوه های ریاضی

سوالات و پاسخنامه تشریحی کنکور

نمونه سوالات امتحانات ریاضی

نرم افزارهای ریاضیات

...

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$$\frac{1}{|\cos^2 x|} (1 - \sin^2 x) = \frac{1}{\cos x} \times \cos^2 x \quad \text{f (124)}$$

$$= -\cos x$$

(100+x) ... μ (125)

$$t_1 - t_2 = \Delta \rightarrow \frac{1200}{100+x} - \frac{1200}{100-x} = \Delta \rightarrow x = 20$$

$$\frac{2x-3}{x+1} - 3 < 0 \rightarrow \frac{-x-4}{x+1} < 0 \quad \text{1 (128)}$$

$$x > -1 \quad \vee \quad x < -4$$

$$\frac{2x-3}{x+1} > 1 \rightarrow \frac{x-2}{x+1} > 0$$

$$x > 2 \quad \vee \quad x < -1$$

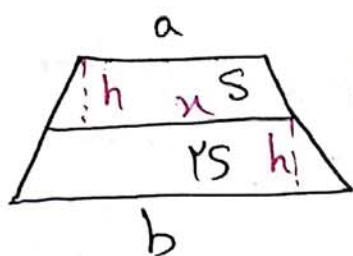
$$R = [-4, 2]$$

$$\binom{1}{2} + \binom{1}{2} + \binom{1}{4} = 1 + 2 + 1 = 4 \quad \text{f (129)}$$

$$2a^2 + 9a = 2 - 14a + 9a^2$$

$$\rightarrow 7a^2 - 14a + 2 = 0 \rightarrow a = \frac{14 \pm 12}{14} = \left\{ \begin{array}{l} \frac{2}{7} \\ 2 \end{array} \right. \quad \text{f (130)}$$

$$a+1 = \frac{2}{7} + 1 = \frac{9}{7} = 1,2857$$



$$x = \frac{a+b}{2} \quad \frac{S}{rs} = \frac{\frac{1}{2}(a+x)h}{\frac{1}{2}(b+x)h} \quad (2) \quad (11)$$

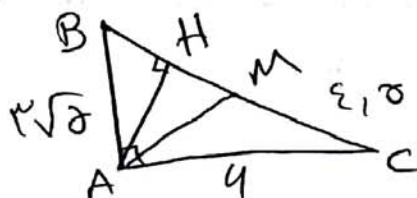
$$= \frac{a+x}{b+x} = \frac{1}{r} \quad \xrightarrow{x = \frac{a+b}{2}} \quad a+b = 2b - \varepsilon a$$

$$\rightarrow \Delta a = b \rightarrow \frac{a}{b} = \frac{1}{2}$$

$$BC = \sqrt{\varepsilon^2 + 4\gamma} = a$$

$$AM = \frac{a}{2}, \quad AH = 2\sqrt{\omega}$$

$$HM = \frac{1}{2} \quad \frac{S_{ABC}}{S_{AHM}} = 11$$



(12)



$$14 \times \frac{1}{2} \times \frac{1}{2} = \frac{\varepsilon}{2}$$

(13)

$$\left(-\frac{\sqrt{3}}{2}\right)\left(-\frac{\sqrt{3}}{2}\right) + (-1)\left(+\frac{1}{2}\right) = \frac{1}{\varepsilon}$$

(14)

$$a+b = \sqrt{3} \rightarrow b = \sqrt{3}$$

$$\left(\frac{\pi}{2}, -\frac{1}{\varepsilon}\right) \rightarrow a - \frac{\sqrt{3}}{2}b = -\frac{1}{\varepsilon}$$

(15)

۱۳۶) نرسه ۱

مهندس یاسین سپهر

$$\left(\frac{5}{2}\right)^{1-2x} = \left(\frac{5}{2}\right)^{3x^2} \rightarrow 3x^2 + 2x - 1 = 0$$

$$\rightarrow x = -1, x = \frac{1}{3} \rightarrow \log_{\frac{5}{2}} \left(9\left(\frac{1}{3}\right) + 1\right)$$

$$= \log_{\frac{5}{2}} 2^2 = \frac{2}{\frac{2}{3}} = 3$$

$$\lim_{x \rightarrow -1^+} \log_{\frac{5}{2}} u(x) = +\infty \rightarrow u(x) = \frac{1}{x+1}$$

۱۳۷) نرسه ۲

$$x \rightarrow -2^- \quad \lim_{x \rightarrow -2^-} \frac{1+x^2}{-(x+1)} \stackrel{H \cdot P}{=} \lim_{x \rightarrow -2^-} \frac{3x^0}{-1} = -12$$

$$a = -12$$

۱۳۸) نرسه ۱

$$P(\text{اول اول دوم}) = 9/8 \rightarrow P(\text{اول دوم}) = \frac{P(\text{اول اول دوم})}{P(\text{اول})}$$

$$\rightarrow P(\text{اول دوم}) = 1/7 \times 1/8 = 1/56$$

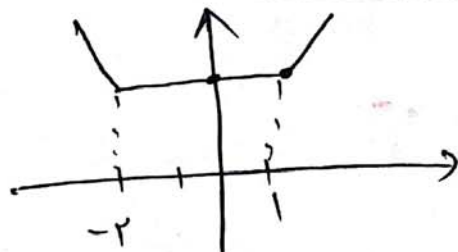
$$P(\text{اول دوم اول}) = 1/7 + 1/8 - 1/56 = 1/4$$

$$C.V = \frac{5}{80} = 6.25\% \text{ نرسه اول}$$

۱۴۰) نرسه ۲

$$C.V = \frac{6}{12} = 50\%$$

نرسه دوم
نرسه اول
نرسه اول



۱۴۱) نرسه ۱

$$(-5, -2)$$

۴ (۱۴۲)

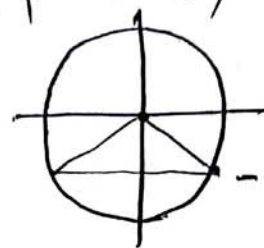
$$f \sin x (-\cos x) = +1 \rightarrow f \left(\frac{1}{f} \sin^2 x \right) = -1$$

$$\rightarrow \sin^2 x = -\frac{1}{f}$$

$$2x = 2k\pi + \frac{\sqrt{\pi}}{4}$$

$$2x = 2k\pi - \frac{\pi}{4}$$

$$-\frac{\pi}{4} \leq \frac{\sqrt{\pi}}{4}$$



$$\rightarrow x = 2\pi$$

$$\lim_{x \rightarrow 0} \frac{2x + 6}{2x - \frac{2}{3}} = \frac{-4}{\frac{1}{2}} = -12$$

۳ (۱۴۳)

$$\lim_{x \rightarrow 0^+} \frac{x^2 - 1}{x + |x|} = \lim_{x \rightarrow 0^+} \frac{-1}{2x} = -\infty$$

۴ (۱۴۴)

$$\lim_{x \rightarrow 0} \frac{(2x)^2 - (\epsilon x^2 + x)}{2x - \sqrt{\epsilon x^2 + x}} = \lim_{x \rightarrow 0} \frac{-x}{\epsilon x} = -\frac{1}{\epsilon}$$

۳ (۱۴۵)

$$y' = \frac{\frac{1}{\sqrt{x}} (\partial - 2x) + 2(1 + \sqrt{x})}{(\partial - 2x)^2}$$

$$= \frac{\frac{1}{\epsilon} (-3) + 2(3)}{9} = \frac{\sqrt{3}}{12}$$

۳ (۱۴۶)

$$\text{بسته} : -\epsilon + 2a + b = 1 \rightarrow \boxed{2a + b = 2}$$

۲ (۱۴۷)

$$\text{مستقیم} : -2x + a = \frac{-1}{(x-1)^2} \rightarrow -\epsilon + a = \frac{-1}{1} = -1$$

$$a = 3 \rightarrow b = -1$$

$$g'(x) f'(g(x)) = 4, \quad g'(x) = \frac{-3}{(x-1)^2}$$

(۱۴۸) رزینا

$$\rightarrow g'(x) = -3, \quad g(x) = 5$$

$$-3 f'(5) = 4 \rightarrow f'(5) = -\frac{4}{3}$$

کتابچه : $f'(x) = 2 + \frac{1}{x^2} \rightarrow f'(x) = 2 + \frac{1}{x}$ (۲) (۱۴۹)

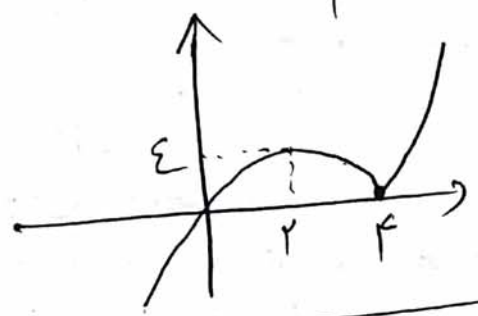
$= 2, 25$

مترت : $\frac{\frac{31}{2} + \frac{1}{2}}{3} = \frac{\frac{32}{2}}{3} = \frac{16}{3} = 5, 175$

$$5, 175 - 2, 25 = 150$$

$$y = x|x-2| = \begin{cases} x^2 - 2x & x \geq 2 \\ -x^2 + 2x & x < 2 \end{cases}$$

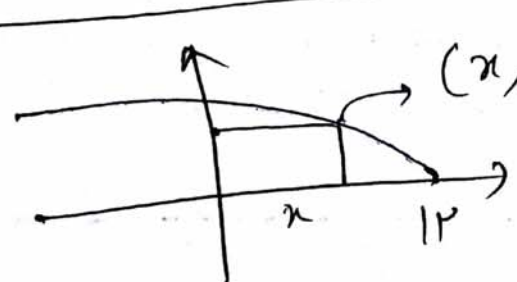
(۴) (۱۵۰)



$(1, \epsilon), (2, 0)$

$$\sqrt{\epsilon + 14} = \sqrt{20} = 2\sqrt{5}$$

(۳) (۱۵۱)



$$S = x\sqrt{12-x}$$

$$S' = \sqrt{12-x} - \frac{x}{2\sqrt{12-x}} = 0 \rightarrow \frac{2(12-x) - x}{2\sqrt{12-x}} = 0$$

$$x = 4 \rightarrow S = 4 \times 2 = 8$$

$$\alpha = 2, \quad c + \beta = 7$$

$$-c + \beta = -1 \rightarrow 2\beta = 4 \rightarrow \beta = 2 \quad (1 \text{ از } 2)$$

$$c = 5$$

$$2b = 4 \rightarrow b = 2, \quad a^2 = b^2 + c^2$$

$$a^2 = 4 + 25 \rightarrow a = 5, \quad e = \frac{c}{a} = \frac{5}{5} = 1$$

$$1, 2, 12, \dots$$

$$(1) (1 \text{ از } 3)$$

$$1, 2^2 + 1, 3^2 + 3, \dots$$

$$n^2 + \frac{n(n-1)}{2} \xrightarrow{n=9} 11 + 36 = 47$$

$$y = (x-1)^2 - 2 \rightarrow F^{-1}(y) = \sqrt{x+2} + 1 \quad (3) (1 \text{ از } 4)$$

$$= \frac{x-9}{2} \rightarrow x = 21$$

۲ حرکت اول منبسط است

$$\frac{\binom{5}{2}}{\binom{11}{2}} = \frac{10}{55} = \frac{2}{11}$$