



سایت ویژه ریاضیات www.riazisara.ir

درسنامه ها و جزوه های ریاضی

سوالات و پاسخنامه تشریحی کنکور

نمونه سوالات امتحانات ریاضی

نرم افزارهای ریاضیات

...

(@riazisara)

ریاضی سرا در تلگرام:



<https://t.me/riazisara>

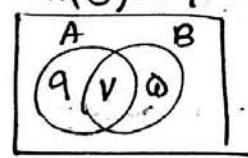
(@riazisara.ir) ریاضی سرا در اینستاگرام:



<https://www.instagram.com/riazisara.ir>

(سوال ۱۰۱)

$n(S) = 39$



$\rightarrow 39 - 21 = 18$

$f(x) = -x + (\frac{1}{x})^{A+B} = 0$ *۱ (۱۰۸ سوال)

$f(x) = -x + (\frac{1}{x})^{2A+B} = x$ *۲

*۱ $\rightarrow x = (\frac{1}{x})^{A+B} \rightarrow A+B = -1$

*۲ $\rightarrow x = (\frac{1}{x})^{2A+B} \rightarrow 2A+B = -2$

$\rightarrow A = -1, B = 0$

$f(x) = -x + 1 = 4$

$\tan \frac{11\pi}{4}$ $\rightarrow -1$

$\sin \frac{10\pi}{4} \rightarrow -\frac{\sqrt{2}}{2}$

$\cos \frac{13\pi}{4} \rightarrow -\frac{\sqrt{2}}{2}$

\rightarrow حل: $-1 + \frac{(-\frac{\sqrt{2}}{2})(-\frac{\sqrt{2}}{2})}{1} = -\frac{1}{2}$

$\lim_{x \rightarrow 0} \frac{\sin a \cos x + \cos a \sin x - \sin a}{x}$ (سوال ۱۱۰)

H $\rightarrow \lim_{x \rightarrow 0} \frac{-\sin a \sin x + \cos a \cos x}{1}$

$\rightarrow \frac{0 + \cos a}{1} = \cos a$

$\lim_{x \rightarrow 2^+} \frac{x-4}{x-\sqrt{x}-2} \rightarrow \frac{0}{0}$ (سوال ۱۱۱)

H $\rightarrow \lim_{x \rightarrow 2^+} \frac{x}{1 - \frac{1}{2\sqrt{x}-2}} = 4$ (سوال ۱۱۲)

$l = f(x) = xa - 1 \rightarrow l^+ = l^-$
 $xa - 1 = \epsilon \rightarrow a = \frac{\epsilon}{x}$

(سوال ۱۰۲) $A = \sqrt{x} \sqrt[3]{14} (\frac{1}{x})^{-\frac{4}{3}}$

$A = \sqrt{x^2} \times x^{\frac{2}{3}} \times x^{-\frac{16}{3}} = (x^{\frac{10}{3}})^{\frac{1}{3}} \times x^{-\frac{16}{3}}$
 $= x^{\frac{10}{9}} \times x^{-\frac{16}{3}} = x^{-\frac{14}{9}}$

$(xA)^{-\frac{1}{3}} \xrightarrow{A=x} x^{-\frac{1}{3}} = \frac{1}{\sqrt[3]{x}} = \frac{1}{\sqrt[3]{x}}$
 $\rightarrow \sqrt[3]{x} = x$

$\Delta > 0$ (سوال ۱۰۳)

$\rightarrow 39 - 4(m-1)(m-2) > 0$

$\rightarrow \frac{ym^2 - 8m - 7 < 0}{m = -1, m = +\frac{7}{y}}$

$g \circ f^{-1} = \{ (2, 3), (4, 1), (2, 4) \}$ (سوال ۱۰۴)

$\frac{g}{g \circ f^{-1}} = \{ (\epsilon, 2), (2, 2) \}$

$a_1 = 14, d = 7, a_n = 48$ (سوال ۱۰۵)

$\rightarrow n = \frac{48 - 14}{7} + 1 = 13$ $n = \frac{b-a}{d} + 1$

$S_{13} = \frac{13}{2} (a_1 + a_n) = 728$

$\frac{1}{x} = \frac{1}{x} + \frac{1}{x+9}$ (سوال ۱۰۶)

$\rightarrow x^2 - 9x - 18 = 0$
 $\rightarrow x = -3$ (سوال ۱۰۷)

$y = -x^2 + 2x + 5 = -(x-1)^2 + 6$
 $y = -x^2 + 11x - 12 > x \rightarrow x^2 - 10x + 12 < 0$
 $\rightarrow x \in (2, 8)$

$$f(x) = \begin{cases} |x^2 - 2x| & x < 2 \\ \frac{1}{p}x^2 + ax + b & x \geq 2 \end{cases} \quad (114 \text{ سوال})$$

$$e^+ = e^- \rightarrow 2 + 2a + b = 0 \rightarrow 2a + b = -2$$

$$|x^2 - 2x| \xrightarrow{x=2^-} -x^2 + 2x \rightarrow y'(x) = -2x + 2 = -2$$

$$y'_+(x) = \frac{2}{p}x + a = 2 + a$$

$$a + b = 2 \rightarrow \begin{cases} a = -2 \\ b = 4 \end{cases}$$

$$\frac{f(x) - f(0)}{x - 0} = \frac{12 - 0}{2 - 0} = 6 \quad (114 \text{ سوال})$$

$$f'(x) = 1 + \sqrt{x+1} + \frac{x}{\sqrt{x+1}}$$

$$\rightarrow f'\left(\frac{14}{9}\right) = 1 + \frac{11}{9} = \frac{19}{9}$$

$$\rightarrow \text{معدل} \Rightarrow \frac{19}{9} = \frac{1}{9} = 0.111$$

$$f'(0) = 0 \rightarrow \text{min} \rightarrow c = 0 \quad (118 \text{ سوال})$$

$$f''(1) = 0 \rightarrow \text{نقطه}$$

$$f'(1) = 0$$

$$12 + 2a + 2b = 0$$

$$24 + 4a + 2b = 0$$

$$\rightarrow \begin{cases} 2a + 2b = -12 \\ 4a + 2b = -24 \end{cases}$$

$$a = -1, b = 6$$

نقطه (1) از نمودار

$$f(x) = 12x^3 + 3ax^2 + 2bx + c$$

$$f'(x) = 36x^2 + 6ax + 2b$$

$$f' = 0 \rightarrow x = 1, x = -\frac{1}{2} \quad (119 \text{ سوال})$$

$$f\left(-\frac{1}{2}\right) = -\frac{1}{2} \rightarrow \text{min}\left(-\frac{1}{2}, -\frac{1}{2}\right)$$

$$\rightarrow |1 - (-\frac{1}{2})| = \frac{3}{2}$$

$$y = 1 + a \sin bx \cos bx \quad (112 \text{ سوال})$$

$$y = 1 + \frac{a}{p} \sin 2bx$$

$$\rightarrow T = \frac{2\pi}{2b} = \pi \rightarrow |b| = 1$$

$$\rightarrow \text{max } |b| \rightarrow (b=1)$$

$$f\left(-\frac{\pi}{2}\right) = \frac{1}{2} \rightarrow 1 + \frac{a}{p} \sin\left(-\frac{\pi}{2}\right) = \frac{1}{2} \rightarrow a = 1$$

$$a + 1 = 2$$

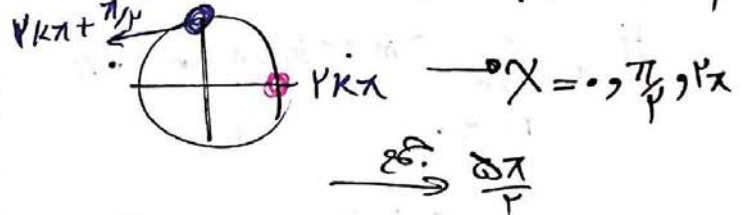
$$\sin^2 x + \cos^2 x = 1 - \frac{1}{2} \sin 2x \quad (113 \text{ سوال})$$

$$(\sin x + \cos x)(\sin x + \cos x - \sin x \cos x) = 1 - \frac{1}{2} \sin 2x$$

$$(\sin x + \cos x)(1 - \frac{1}{2} \sin 2x) = 1 - \frac{1}{2} \sin 2x$$

$$\sin x + \cos x = 1 \rightarrow \sqrt{2} \sin\left(x + \frac{\pi}{4}\right) = 1$$

$$\begin{cases} x + \frac{\pi}{4} = 2k\pi + \frac{\pi}{6} \\ x + \frac{\pi}{4} = 2k\pi + \frac{5\pi}{6} \end{cases} \rightarrow \begin{cases} x = 2k\pi \\ x = 2k\pi + \frac{\pi}{2} \end{cases}$$



$$(x-2)^2 \quad (114 \text{ سوال})$$

$$x^2 - 4x + 4 \sim x^2 + ax + b$$

$$a = -4, b = 4$$

$$\lim_{x \rightarrow 2} \frac{f(x) - f(2)}{x - 2} = f'(2) = \frac{4}{2} = 2 \quad (115 \text{ سوال})$$

$$(f \circ g)'(x) = f'(g(x)) g'(x) = 2$$