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* مولف و مشاور درس ریاضی کانون

* طراح ریاضی گاج آزمون‌های آزمایشی کنکور

(1)

a, b, c جملات متوالی دنباله‌ای

$b = \frac{a+c}{2}$ حسابی

$\frac{3}{4}, \frac{5}{2}, \frac{17}{14}$

$a_1 = \frac{3}{4}$

$d = \frac{5}{2} - \frac{3}{4} = \frac{7}{4}$

$a_9 = a_1 + 8d = \frac{3}{4} + \frac{56}{4} = \frac{59}{4} = 14/75$

$\hookrightarrow a_n = a_1 + (n-1)d$

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(3)

زاس کاهی و نقاط هم عرض $\frac{-1,5+3}{2} = \frac{3}{4} = -\frac{b}{2a}$

$S = \alpha + \beta = -\frac{b}{a} = \frac{3}{2}$

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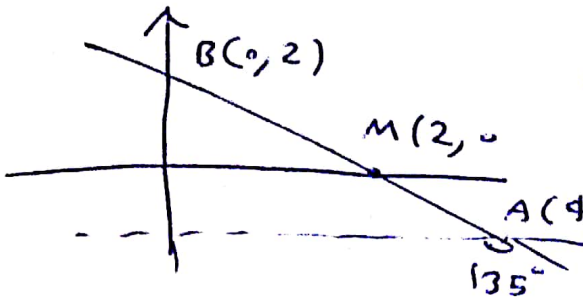
(4)

$|\alpha - \beta| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{4k^2 - 20}}{1} = \frac{4}{3}k \rightarrow$

$4k^2 - 20 = \frac{16}{9}k^2$

$\rightarrow \frac{5}{9}k^2 = 5 \Rightarrow k^2 = 9 \rightarrow \frac{k^2}{2} = 4,5$

$\Rightarrow \left[\frac{k^2}{2}\right] = 4$



$OA = \sqrt{16+4} = 2\sqrt{5}$ (5)

$y = -x+2 \Rightarrow M(0,2) \to A(4,-2)$

$f(\sqrt{5}) = (\sqrt{5})^2 - [\sqrt{5}] = 5-2 = 3$

(6)

$f(3a) = 2 \Rightarrow 9a^2 - [3a] = 2$

با دقت کردن به گزینه‌ها این مساوی برقرار است $a = -\frac{1}{3}$

$x \geq a \Rightarrow a \geq 0$

$\sqrt{x-a} = a - \sqrt{x} \xrightarrow{(2)} x - a = x - 2a\sqrt{x} + a^2$

$\sqrt{x} = \frac{a^2+a}{2a} = \frac{a+1}{2} \Rightarrow x = \left(\frac{a+1}{2}\right)^2$ فرد

(7)

$a=1 \to x=1$

$a=3 \to x=4$

$a=5 \to x=9$

$a=7 \to x=16$

$a=9 \to x=25$

5 عدد صحیح

$y = \frac{x-10}{10} \xrightarrow{y=1} x = 20$ (8)

$f'(x): \frac{x-10}{10} \xrightarrow{y=1} f'(20) = 1 \Rightarrow f(1) = 20$

$x = 20$

$1 + 6 + 9 + 1 = 20$

$9 = 12$

$(x^2 + 2x + 4)(x-2) = 8 \Rightarrow x^3 - 8 = 8$ (9)

$x^3 = 16 \Rightarrow x = \sqrt[3]{16}$

$\log_{\sqrt[3]{2}}^{x} = \log_{\sqrt[3]{2}}^{\sqrt[3]{16}} = 4$

$f(0) = 2 \rightarrow c + \log_5^b = 2$

$f(2,4) = 0 \rightarrow c + \log_5^{(2,4a+b)} = 0$ } Lio (10)

$b = 9.a + 25b. \Leftarrow \frac{b}{2,4a+b} = \frac{25}{1} \leftarrow \log_5^{\frac{b}{2,4a+b}} = 2$

$-24b = 7.9$

$-2b = 59 \rightarrow \frac{a}{b} = -\frac{2}{5}$ ✓

(12)

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

$$\underbrace{\sqrt{2}\sin x - \sqrt{2}\cos x}$$

$$\sqrt{2}\left(\sqrt{2}\sin\left(x - \frac{\pi}{4}\right)\right)$$

$$3\cos 60^\circ + 2\sin(-30^\circ)$$

$$3 \times \frac{1}{2} - 2 \times \frac{1}{2} = \frac{1}{2}$$ ✓

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(13)

$$\frac{\sin^4\alpha + 4(1-\sin^2\alpha)}{1+(1-\sin^2\alpha)} - \frac{\cos^4\alpha + 4(1-\cos^2\alpha)}{1+(1-\cos^2\alpha)}$$

$$= \frac{\sin^4\alpha - 4\sin^2\alpha + 4}{2-\sin^2\alpha} - \frac{\cos^4\alpha - 4\cos^2\alpha + 4}{2-\cos^2\alpha}$$

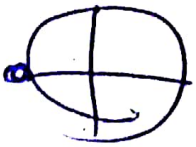
$$= (2-\sin^2\alpha) - (2-\cos^2\alpha) = \cos^2\alpha - \sin^2\alpha$$

$$= \cos 2\alpha$$ ✓

(14)

$$\cos 2x + \frac{1-\cos 2x}{2} = 0$$

$$\frac{\cos^2 2x + 1}{2} = 0 \Longrightarrow \cos 2x = -1$$



$$2x = 2k\pi + \pi \Longrightarrow x = k\pi + \pi/2$$

$$\frac{-5\pi}{2}, \frac{-3\pi}{2}, \frac{-\pi}{2}, \frac{\pi}{2} = -4\pi$$ ✓

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(15)

$$\lim_{x \to 2^+} \frac{x-2}{x^2-4} \overset{0/0}{\sim} \overset{\text{H.O.P}}{\frac{1}{2x}} = \frac{1}{4}$$

$$\lim_{x \to 2^-} \frac{x-2}{x^2-3} = \frac{0}{1} = 0 \qquad 0 + \frac{1}{4} = \frac{1}{4}$$

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(16)

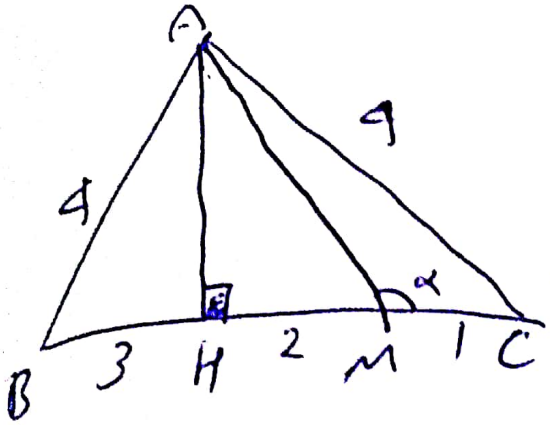
$$f - g = \frac{4}{(x-1)(x+3)} - \frac{1}{x-1}$$

$$= \frac{1-x}{(x-1)(x+3)} = \frac{-1}{x+3}$$

عمودي عند $x = -3$

أفقي $y = 0$

✓ $(-3, 0)$



$AH = \sqrt{7}$

$\operatorname{tg} 1 = -\frac{AH}{MH} = -\frac{\sqrt{7}}{2}$

(11)

$\lim_{x \to 0} ([x] + [-x]) = -1$

(17)

(20) خط $y=\frac{1}{x}$ در نقطه $x=9$ بر $y=bx+C$ مماس است.

$$x=9 \Rightarrow y=\frac{1}{9}$$

$$y'=-\frac{1}{x^2} \Rightarrow m=-\frac{1}{9^2}$$

معادله خط مماس: $y-\frac{1}{9}=-\frac{1}{9^2}(x-9)$

$$y=-\frac{1}{9^2}x+\frac{2}{9}=bx-C$$

$$C=\frac{2}{9} \Rightarrow 9C=2$$

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(21) نقطه $A(-1,9)$

$$y''=6x+2a=0 \Rightarrow -6+2a=0$$

$$a=3$$

$$y(-1)=-8 \Rightarrow -1+a-b-1=-8$$

$$b=5$$

$$\frac{a}{b}=\frac{3}{5}=0.6$$ موفق باشید

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