



آدرس وب سایت ما

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نوین کنکور

در شبکه های اجتماعی



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**۰۹۳۸۲۵۱۶۷۴۷**

نوین کنکور مرجع کنکور و امتحان نهایی

$$\left( \frac{\sqrt{2} + \sqrt{5}}{\sqrt{10} + 2} \right) (\sqrt{3 - \sqrt{5}} - \sqrt{3 + \sqrt{5}})$$

a                      b < 0

۱.۱ - گزیده

$$ab = \frac{1}{\sqrt{2}} x - \sqrt{2} = -1$$

۱.۱ متوسط

$$a = \frac{\sqrt{2} + \sqrt{5}}{\sqrt{2}(\sqrt{5} + \sqrt{2})} \left( \frac{1}{\sqrt{2}} \right), \quad b^2 = (3 - \sqrt{5}) + (3 + \sqrt{5}) - 2\sqrt{9 - 5} =$$

$$9 - 4 = 5 \rightarrow b^2 = 5 \rightarrow b = \pm\sqrt{5}$$

مقدار مثبت غرق

$b = -\sqrt{5}$

$$d_n = an^2 + bn + c$$

۱.۲ - گ

$$d_5 = 14 \rightarrow 25a + 5b + c = 14$$

$$d_7 = 14/2 \rightarrow 49a + 7b + c = 14/2$$

$$a = -\frac{1}{5}$$

$$\begin{cases} -5 + 5b + c = 14 \\ -9.5 + 7b + c = 14/2 \end{cases} \rightarrow \begin{cases} 5b + c = 19 \\ 7b + c = 27 \end{cases} \rightarrow \begin{cases} b = 4 \\ c = -1 \end{cases}$$

فرض سوال  $\rightarrow a = \frac{1-14}{5} = -\frac{1}{5}$

$$\frac{d_{15}}{d_1} = ? \rightarrow \frac{225a + 15b + c}{a + b + c} = \frac{-45 + 60 - 1}{-0.2 + 4 - 1} = \frac{14}{2.8} = 5$$

۱.۳ متوسط و پیرجاسپ

$$y_1 = -ax^2 + ax + 2 \rightarrow S\left(\frac{1}{x}, \frac{a}{x} + 2\right) \rightarrow y_1 = 12x^2 - 12x + 2$$

$$y_2 = 2bx^2 - bx - 1 \rightarrow S'\left(\frac{1}{x}, -\frac{b}{x} - 1\right)$$

جایگزای

$$y_2 \text{ در } S \rightarrow 2b\left(\frac{1}{x}\right) - b\left(\frac{1}{x}\right) - 1 = \frac{a}{x} + 2 \rightarrow \frac{a}{x} = -3 \rightarrow a = -12$$

جایگزای

$$y_1 \text{ در } S' \rightarrow 12\left(\frac{1}{x}\right) - 12\left(\frac{1}{x}\right) + 2 = -\frac{b}{x} - 1 \rightarrow \frac{1}{x} = -\frac{b}{x} - 1 \rightarrow$$

$$\frac{b}{x} = -1 + \frac{1}{x} \rightarrow \frac{b}{x} = \frac{-3}{x} \rightarrow b = -6$$

$$b - a = -6 - (-12) = 6$$

۱.۳ سخت و پیرجاسپ

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

$$25 - 1.4$$

رابطه داده شده

$$(I) -2 < \frac{1-3x}{x+1} \rightarrow \frac{1-3x}{x+1} + 2 > 0 \rightarrow \frac{-x+3}{x+1} > 0 \rightarrow (-1, 3)$$

$$(II) \frac{1-3x}{x+1} < 0 \rightarrow (-\infty, -1) \cup (\frac{1}{3}, +\infty) \quad (I) \cap (II) \rightarrow (\frac{1}{3}, 3)$$

$$\frac{1}{3} < x < 3 \rightarrow \frac{1}{3} < \frac{x}{3} < \frac{3}{3} \rightarrow [\frac{x}{3}] = 0, [\frac{x}{3}] = 1 \quad \text{دو مقدار}$$

$$P(x) = abx - ax^2 + 2b - 2x - 7x^2 = (a-7)x^2 + (ab-2)x + 2b = 1.5$$

تابع ثابت  $\rightarrow a = -7, b = -\frac{2}{7} \rightarrow P(x) = 2b = -\frac{4}{7} \quad 3$

$$P(x) = \frac{1}{x} \rightarrow \frac{1}{x-1} \rightarrow \frac{-1}{x-1} = 2 \quad 4 - 1.6$$

$$\frac{-1}{x-1} = 2 = \frac{1}{x} \rightarrow$$

رابطه های تابع جدید

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

$$x^2 = \frac{1}{2} \rightarrow x = \frac{\sqrt{2}}{2}, y = \sqrt{2}$$

$$x = -\frac{\sqrt{2}}{2}, y = -\sqrt{2}$$

$$d = \sqrt{(\frac{\sqrt{2}}{2} - 0)^2 + (\sqrt{2} - 0)^2} = 1$$

نام بردار از مبدأ مختصات

$$d = \sqrt{\frac{1}{2} + 2} = \frac{\sqrt{5}}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{10}}{2} \quad 5$$

رابطه داده شده

$$x^2 - (a^2 + b^2 - 12)x + a + b - 1 = 0$$

a, b, c به هم وابسته

$$1.7$$

$$S = a + b = a^2 + b^2 - 12 \rightarrow a + b = (a+b)^2 - 2ab - 12 \quad ab = a+b-1$$

رابطه داده شده

$$P = ab = a + b - 1$$

$$(a+b)^2 - 2(a+b-1) - (a+b) - 12 = 0$$

$$\rightarrow (a+b)^2 - 3(a+b) - 11 = 0 \quad a+b = x \quad x^2 - 3x - 11 = 0 \rightarrow x = 5 \rightarrow a+b = 5$$

$$\sqrt{2-x} = a$$

سفت ۱.۸ - ۱.۸

$$\frac{1}{a+2} - \frac{1}{2-a} = \frac{0}{5} \rightarrow \frac{2-a-2-a}{2-a^2} = \frac{a}{5} \rightarrow \frac{-2a}{2-a^2} = \frac{a}{5}$$

$$\frac{a \neq 0}{\sqrt{2-x} \neq 0} \rightarrow \frac{-2}{2-a^2} = \frac{1}{5} \rightarrow 2-a^2 = -1 \rightarrow 2-(2-x) = -1 \rightarrow 2+x = -1 \rightarrow x = -12$$

چون بیشتر مخرج است

غ و ق

$$(a, b) \in P \quad y = -3x^3 + 2x - 11 \quad \text{ساده} \quad 1.9 - 1.9$$

$$\downarrow$$

$$(b, a) \in P^{-1} \xrightarrow{x=-2} y = -3(-2)^3 + 2(-2) - 11 = 9 \rightarrow (9, -2) \checkmark$$

$$P(x) = 1, 5x - 3 \quad (\text{معادله خط را از دو نقطه داده شده}) \quad 11. - 11$$

$$P^{-1}(2) = ? \rightarrow P(?) = 2 \rightarrow 1, 5x - 3 = 2 \rightarrow x = \frac{2}{3} \rightarrow P^{-1}(2) = \frac{2}{3}$$

بر روی نمودار بیست می آوریم

$$g(x) = \begin{cases} 2x-1 & x \geq 1 \\ -x+2 & x < 1 \end{cases} \quad g\left(\frac{2}{3}\right) = \frac{2}{3}$$

$$g(0) = 2 \rightarrow g'(2) = 3$$

$$g \circ P^{-1}(2) = g\left(\frac{2}{3}\right) = \frac{2}{3} \rightarrow \frac{2}{3} \times 3 = 2$$

$$g \circ g(0) = g(2) = 3$$

سفت و به محاسبه

$$x^2 P(x) \geq 0 \rightarrow P(x) \geq 0 \rightarrow P(x) \geq P(3) \rightarrow x \leq 3$$

الیه آنزولی

ساده

$\{0, 1, 2, 3\}$

$$-\frac{\pi}{12} < x < \frac{5\pi}{12} \rightarrow -\frac{\pi}{4} < 2x < \frac{5\pi}{4}$$

۵۴

$-\frac{1}{2} < \sin 2x < 1$

$$\rightarrow -\frac{1}{2} < \frac{m-1}{4} < 1 \rightarrow -2 < m-1 \leq 4 \rightarrow 1 < m \leq 5 \rightarrow (-1, 5]$$

۲

(ساده)

$$\sin x + \cos x = \frac{r}{\sqrt{a}} \xrightarrow{\text{تفاضل}} 1 + \sin^2 x = \frac{a}{a} \rightarrow \sin^2 x = \frac{a}{a} \quad (1) - 112$$

$$\frac{r + \tan x}{1 + \tan^2 x} = \frac{r}{a} \quad \begin{cases} \tan x = \frac{1}{r} \\ \tan x = r \end{cases} \quad \left( \frac{1}{a} \leq \tan x \leq \frac{a}{a} \right) \quad (2) - 113$$

$$|a| + c = \frac{a}{r} \quad (\max) \rightarrow c = 1$$

$$-|a| + c = -\frac{1}{r} \quad (\min) \rightarrow ac = -\frac{r}{r}$$

$$x = 0 \rightarrow c + a = -\frac{1}{r} \xrightarrow{c=1} a = -\frac{r}{r}$$

$$x + \frac{\pi}{4} = \alpha \rightarrow \alpha - \beta = \frac{\pi}{4} \rightarrow \alpha = \frac{\pi}{4} + \beta$$

$$x - \frac{\pi}{4} = \beta \rightarrow \sin \alpha \cos \beta = 1 \rightarrow \sin\left(\frac{\pi}{4} + \beta\right) \cos \beta = 1 \rightarrow \cos \beta = 1$$

$$\cos \beta = \pm 1 \rightarrow \cos\left(x - \frac{\pi}{4}\right) = \pm 1$$

$$\begin{cases} x - \frac{\pi}{4} = 0 \rightarrow x = \frac{\pi}{4} \\ x - \frac{\pi}{4} = \pi \rightarrow x = \frac{5\pi}{4} \end{cases}$$

$$\log_a b = \frac{r}{r} (1+a) \rightarrow b = 1 \quad \frac{r}{r} (1+a) \rightarrow b = r^{1+a} = r^a \cdot r = 114$$

$$\log_r r = a \rightarrow b = r^a \cdot r = r^a \rightarrow \log(r^a - 1) = \log(1 \cdot 1 - 1) = \log(0) = 0 \quad (2) - 115$$

$$f(x) = \sqrt[r]{ax+b}$$

$$\left(\frac{1}{r}, 1\right) \in f \rightarrow \sqrt[r]{\frac{a}{r} + b} = 1 \rightarrow \frac{a}{r} + b = 0 \rightarrow a = -rb$$

$$(2, 1) \in f \rightarrow \sqrt[r]{2a+b} = 1 \rightarrow 2a+b = 1 \rightarrow -2b = 1 \rightarrow b = -\frac{1}{2}$$

$$a = 1$$

1562

157 - 118

$$a+b+3-1-1+0=0 \rightarrow a+b=-1$$

$$\rightarrow a=2 \quad (b=-3)$$

$$\frac{9+1+1+a^2+b^2}{4}=4 \rightarrow \frac{11+a^2+b^2}{4}=4 \rightarrow a^2+b^2=13$$

متوسط

$$\bar{x} = 1.5 \quad \bar{x} = 4.5$$

$$Q_2 = 3$$

تعداد شرایط سوال را

داده

زدن مثال عدد

119 - متوسط

$$\bar{x} = \frac{12}{4} = 3$$

3

$$\lim_{x \rightarrow -1^+} \frac{|x+1| + [x]}{x - [-x]} = \frac{x}{x} = 1$$

120 - 121  
(ساده)

$$[-1^+] = -1$$

$$[-(-1^+)] = 0$$

$$\lim_{x \rightarrow +\infty} \frac{f(x)}{x+2} = \frac{1}{2}$$

(متوسط)

$$f(x) = \sqrt{ax^2 + x + 1}$$

121

$$x \rightarrow +\infty$$

$$\rightarrow \lim_{x \rightarrow +\infty} \frac{\sqrt{ax}}{x} = \frac{1}{2} \rightarrow a = \frac{1}{4} \rightarrow f(x) = \sqrt{\frac{1}{4}x^2 + x + 1}$$

$$\lim_{x \rightarrow (-1)^-} \left[ \frac{1}{x} \right] f(x) = -f(x) \rightarrow \lim_{x \rightarrow (-1)^-} \sqrt{\frac{1}{4}(-1)^2 - 1 + 1} = -\frac{1}{2}$$

$$\lim_{x \rightarrow 1} \frac{f'(x) - 1}{f(x) - 1} = \frac{1-1}{0} = \frac{0}{0}$$

$$f(x) = \frac{x\sqrt{x}}{2x^2 + x - 1}$$

- 122

$$x \rightarrow 1$$

$$\xrightarrow{\text{H.o.P}} \lim_{x \rightarrow 1} \frac{f'(x)}{f(x)} = f'(1) = f'(1)$$

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

$$f'(1) = \frac{\frac{3}{2}(2) - 5}{(2)^2} = \frac{3-5}{4} = \frac{-1}{2}$$

$$\frac{1}{2} \lim_{x \rightarrow 1} \frac{f(x) - \frac{1}{2}}{x-1} = \lim_{x \rightarrow 1} \frac{f(x) - f(1)}{x-1} = f'(1)$$

(از تعریف مشتق هم می توان رفت)

$$y = 2x + b \rightarrow m = 2$$

$$y = \frac{x+a}{ax+1} \rightarrow y' = \frac{1-a}{(ax+1)^2} \xrightarrow{x=1} y' = m = 2 \rightarrow 2 = \frac{1-a}{(a+1)^2}$$

3 - 123

$$\frac{1-a}{1+a} = 2 \rightarrow 1-a = 2+2a \rightarrow a = -\frac{1}{3}$$

سخت

$$y = \frac{x - \frac{1}{3}}{-\frac{1}{3}x + 1} \xrightarrow{x=1} y = \frac{\frac{2}{3}}{\frac{2}{3}} = 1 \rightarrow (1, 1)$$

$$1 = 2(1) + b \rightarrow b = -1$$

$$a - b = -\frac{1}{3} + 1 = \frac{2}{3}$$

\* جایگذاری (1,1) در



$$y' = 3x^2 + 2ax - 2b$$

$$x=0 \rightarrow y'=0 \rightarrow b=0$$

$$\rightarrow y = x^3 + 3x^2 - 2$$

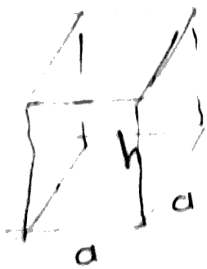
$$x=-2 \rightarrow y' = 12 - 4a = 0 \rightarrow a=3$$

$$x=0 \rightarrow y = -2 \rightarrow (0, -2)$$

$$\sqrt{3^2 + 2^2} = 2\sqrt{5}$$

$$x=-2 \rightarrow y=0 \rightarrow (-2, 0)$$

فاصله



$$a^2 h = 1 \rightarrow h = \frac{1}{a^2}$$

$$y_{\min} = ?$$

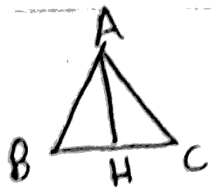
$$y = a^2 + 4ah \rightarrow y = a^2 + \frac{4}{a} \rightarrow y' = 2a - \frac{4}{a^2}$$

$$\rightarrow y'=0 \rightarrow a=2 \rightarrow y = 4 + \frac{4}{2} = 4 + 2 = 6 \rightarrow y_{\min} = 6$$

RRARRR

$$2!4! = 48$$

$$\left(\frac{1}{4} \times \frac{1}{4}\right) + \left(4 \times \frac{1}{16}\right) = \frac{3}{4}$$



$$BC \rightarrow m = \frac{11-3}{4-3} = 8$$

$$y-3 = 2(x-3) \rightarrow y_{BC} = 2x-3$$

$$y-2x+3=0$$

AH برابر است فاصله A(6,1) از خط BC

$$\frac{|9-2+3|}{\sqrt{5}} = \frac{10}{\sqrt{5}} = \sqrt{20} = 2\sqrt{5}$$



۱۲۹ - معادله وارثناع هردو صلت يکي است پس نسبت مساحت آنما (د) است  
 گزیده (ساده)

$$x^2 + y^2 - 2y = 2 \rightarrow x^2 + (y-1)^2 = 3 \rightarrow O(0,1) \quad R = \sqrt{3} \approx 1,7 \quad -13.$$

$$x^2 + y^2 + 2y - 4x = 0 \rightarrow (x-2)^2 + (y+1)^2 = 5 \rightarrow O'(2,-1) \quad R' = \sqrt{5} \approx 2,25$$

$$d = OO' = \sqrt{(1-2)^2 + (2)^2} = 2\sqrt{2} \approx 2,8$$

$$R' - R < d < R' + R \rightarrow 1,45 < 2,8 < 4,0 \quad \checkmark$$

مقاطع  
 گزیده

(۲)



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