

$$\frac{a}{q}, a, aq \rightarrow \frac{fa}{q}, \wedge a, 14aq$$

$$r(\wedge a) = \frac{fa}{q} + 14aq \xrightarrow{a \neq 0} r = \frac{1}{q} + 14q \rightarrow 14q^2 - 14q + 1 = 0$$

$$\boxed{q = \frac{1}{14}}$$

$$\left(\frac{a}{q}\right)^2 + a^2 + (aq)^2 = \frac{fa}{q} + \wedge a + 14aq \xrightarrow{q = \frac{1}{14}} a = \frac{f \wedge}{\sqrt{14}}$$

$$\text{جگہ اول} = \frac{a}{q} = \frac{f \wedge}{\sqrt{14}} \times 14 = \frac{14f}{\sqrt{14}}$$



سایت کنکور

**Konkur.in**

$$y = kx^2 - fx - y$$

$$S \left\{ \begin{aligned} x &= -\frac{-f}{2k} = \frac{f}{k} \end{aligned} \right.$$

$$y = -fx - f - \frac{f+4k}{k} = -f \times \frac{f}{k} - f$$

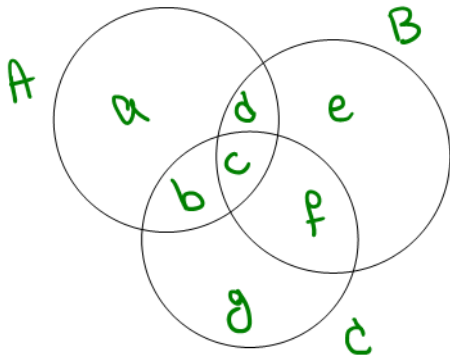
$$y = -\frac{14 + f \times 4k}{4k} = -\frac{f+4k}{k} \quad \leftarrow \quad \boxed{k=2}$$

$$y = -\frac{14}{2} = -7$$



سایت کنکور

**Konkur.in**



$$(A-B)' = (A \cap B')' = A' \cap B = \{e, f\}$$

$$B - A = \{e, d\}$$

$$((A' \cap B) - (B - A)) - C = \{f\} - \{b, c, f, g\} = \emptyset$$

$$A' = \{e, f, g\} \quad B \cup C = \{b, c, d, e, f, g\}$$

$$A' - (B \cup C) = \emptyset$$

$$\begin{aligned} & (A \cap B)' \cap (B \cap C)' \cap C' \\ &= (A' \cup B') \cap (C \cup B') \cap C' \\ &= (A' \cup B') \cap \underbrace{(C \cap C')}_{\emptyset} \cap (B' \cap C') = (B \cup A') \cap (B' \cap C') \\ &= \underbrace{(B \cap B' \cap C')}_{\emptyset} \cup (A' \cap B' \cap C') \\ &= A' \cap (B \cup C)' \\ &= A' - (B \cup C) \end{aligned}$$

دستور:

Konkur.in

$$\begin{aligned} & (r \wedge (p \vee q)) \vee (\sim (p \vee q) \wedge r) \\ & = r \wedge ((p \vee q) \vee (\sim (p \vee q))) = r \end{aligned}$$



سایت کنکور

**Konkur.in**

$$3 \leftarrow \boxed{5}$$

$$f \quad x^2 + 4x + m = 0$$

$$- \quad x^2 + 2x - 3m = 0$$

$$fx + fm = 0 \rightarrow x = -m$$

$$m^2 - 3m = 0 \rightarrow m = 0, \boxed{5} \checkmark$$

$$x^2 + 2x - 15 = 0$$

$$(x-3)(x+5) = 0 \rightarrow \boxed{x = 3, -5}$$

$$x^2 + 4x + 5 = 0$$

$$x = -1, -5$$

$$\text{اصلاف} = 3 - (-1) = 4$$



سایت کنکور

**Konkur.in**

$$-2 < \frac{2}{x^2 - 3x + 2} < 0 \rightarrow -1 < \frac{1}{x^2 - 3x + 2} < 0 \quad f \leftarrow \boxed{4}$$

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

$\Delta = 9 - 12 < 0$   
 $\emptyset$



سایت کنکور

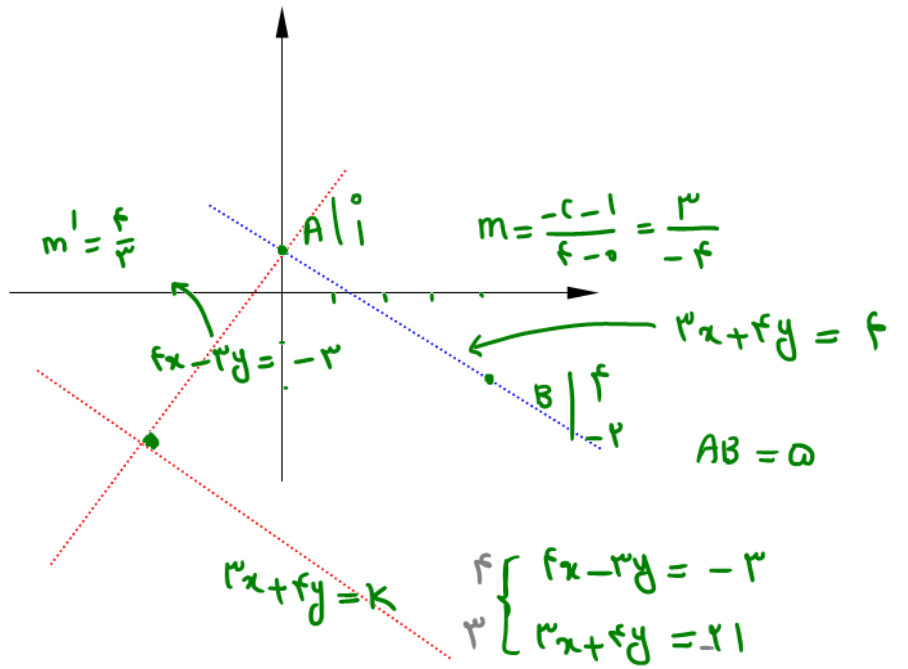
**Konkur.in**

فاصلہ  $A$  سے  $B$  تک =  $\omega = \frac{|f-k|}{\sqrt{9+14}}$

$|k-f| = 2\omega$

$k-f = \pm 2\omega$

$k = 21 \rightarrow$   
 $k = -29$



$$\begin{cases} f & fx - 3y = -3 \\ 3 & 3x + 4y = 21 \end{cases}$$

$20x = -70 \rightarrow x = -3$



سایت کنکور

Konkur.in

$$f(x) = \log(2x - 5)$$

$$g(x) = x + \sqrt{2x - 5}$$

$$y \leftarrow \boxed{\wedge}$$



$$\log(2x - 5) = 0$$

$$x = 3$$

$$x + \sqrt{2x - 5} = 3$$

$$\sqrt{2x - 5} = 3 - x$$

$$2x - 5 = 9 - 4x + 2x^2$$

$$x^2 - 8x + 14 = 0$$

$$\Delta' = 14 - 16 = -2$$

$$x = 4 \pm \sqrt{2}$$



سایت کنکور

Konkur.in



$$f(x) = 2 + 2x \quad b - ax$$

$$g(x) = -x^2 - 3x + 8$$

$$x=1 \rightarrow 2 + 2x = -1 - 3 + 8 \quad 1 \leftarrow \boxed{9}$$

$$2b - a = 2^1 \rightarrow \boxed{b - a = 1}$$

$$10 \rightarrow \boxed{f^{-1}} \rightarrow -1$$

$$10 \leftarrow \boxed{f} \leftarrow -1 \quad f(-1) = 2 + 2x = 10$$

$$2b + a = 10$$

$$2b + a = 8 = 2^3$$

$$\begin{cases} b - a = 1 \\ b + a = 3 \end{cases} \rightarrow b = 2, a = 1$$

$$2b - a = 2 - 1 = 1$$

$$\boxed{b + a = 3}$$



سایت کنکور

Konkur.in

$$\frac{1}{x+2} - \frac{x^2-9x-2}{(x+2)(x^2-2x+4)} = \frac{4x}{x^2-2x+4}$$

$$x^2-2x+4 - x^2+9x+2 = 4x(x+2)$$

$$7x+4 = 4x^2+12x$$

$$4x^2+5x-4=0$$

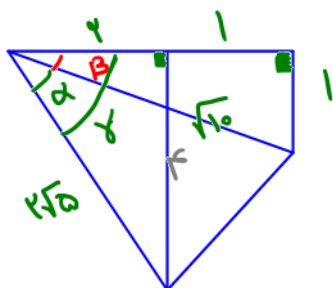
$$\Delta = 25 + 4 \times 4 = 25 + 16 = 41$$

$$x = \frac{-5 \pm \sqrt{41}}{8} \quad \left\{ \begin{array}{l} \oplus x = \frac{-5 + \sqrt{41}}{8} \quad \checkmark \\ \ominus x \end{array} \right.$$



سایت کنکور

Konkur.in



$$\cos \alpha = ?$$

$$\cos \beta = \frac{r}{\sqrt{10}} \quad \sin \beta = \frac{1}{\sqrt{10}}$$

$$\alpha + \beta = \gamma$$

$$\alpha = \gamma - \beta \rightarrow \cos \alpha = \cos(\gamma - \beta) = \cos \gamma \cos \beta + \sin \gamma \sin \beta$$

$$= \frac{r}{\sqrt{5}} \times \frac{r}{\sqrt{10}} + \frac{4}{\sqrt{5}} \times \frac{1}{\sqrt{10}}$$

$$= \frac{r \times r + 4}{\sqrt{5} \times \sqrt{10}} = \frac{r \times 5 = (\sqrt{5})^2}{\sqrt{5} \times \sqrt{10}} = \frac{\sqrt{5}}{\sqrt{10}} = \sqrt{5} \times \sqrt{2}$$

$$= \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

سایت کنکور

Konkur.in

$$y = a + b \cos\left(cx - \frac{\pi}{r}\right)$$

۳ ← ۱۲

$$T = \frac{2\pi}{\omega} - \left(-\frac{2\pi}{\omega}\right) = 2\pi = \frac{2\pi}{|c|} \rightarrow |c| = 1 \xrightarrow{c > 0} c = 1$$

$$y_{\max} = a + |b| = 1 \xrightarrow{b > 0} a + b = 1 \quad \left. \begin{array}{l} \\ \end{array} \right\} a = -1, b = 2$$

$$f(0) = 0 \rightarrow a + \frac{b}{r} = 0 \rightarrow 2a + b = 0 \quad \left. \begin{array}{l} \\ \end{array} \right\} \Rightarrow b(c - a) = 2(1 - (-1)) = 4$$



سایت کنکور

**Konkur.in**

$$\cos\left(\frac{17\pi}{\lambda} + x\right) = \cos\left(\frac{17\pi + \pi}{\lambda} + \alpha\right) = \cos\left(2\pi + \frac{\pi}{\lambda} + \alpha\right) = \cos\left(\frac{\pi}{\lambda} + \alpha\right)$$

f ← 13

$$\cos\left(\frac{3\pi}{\lambda} - x\right) = \cos\left(\frac{6\pi - \pi}{\lambda} - \alpha\right) = \cos\left(\frac{\pi}{\lambda} - \left(\frac{\pi}{\lambda} + \alpha\right)\right) = \sin\left(\frac{\pi}{\lambda} + \alpha\right)$$

$$\cos\left(\frac{\pi}{\lambda} + \alpha\right) \sin\left(\frac{\pi}{\lambda} + \alpha\right) = \left(\frac{1}{2}\right)^2$$

$$2 \sin\left(\frac{\pi}{\lambda} + \alpha\right) \cos\left(\frac{\pi}{\lambda} + \alpha\right) = \frac{1}{2}$$

$$\sin\left(\frac{\pi}{\lambda} + 2\alpha\right) = \frac{1}{2}$$

$$\frac{\pi}{\lambda} + 2\alpha = 2k\pi + \frac{\pi}{4}$$

$$\frac{\pi}{\lambda} + 2\alpha = 2k\pi + \frac{5\pi}{4}$$

$$\alpha = \frac{(2fk - 1)\pi}{2f}$$

$$\alpha = \frac{(2fk + 1)\pi}{2f}$$

$$\left[-\frac{17\pi}{24}, \frac{17\pi}{24}\right]$$

k	α
0	$-\frac{\pi}{24}$

k	α
0	$\frac{17\pi}{24}$

مجموع  $\rightarrow \frac{4\pi}{24} = \frac{\pi}{6}$

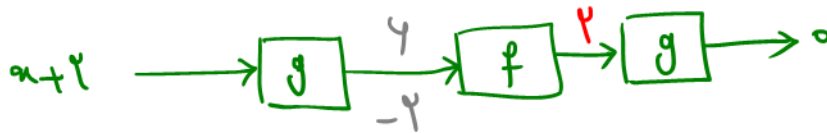
Konkur.in

$$f(x) = \frac{|x-2|}{2}$$

$$\rightarrow \frac{|x-2|}{2} = 2 \rightarrow |x-2| = 4 \rightarrow x-2 = \pm 4$$

$$x = 4, -2$$

$$2 \leftarrow \boxed{|4|}$$



سایت کنکور

**Konkur.in**

$$\text{معادلاتاً} \quad \frac{x}{m} + \frac{y}{n} = 1 \rightarrow y = -\frac{n}{m}x + n = f(x)$$

$$f(x) = -\frac{n}{m}x + n$$

1 ← 15

$m < 0$

$$\lim \frac{-\frac{n}{m}x + \dots}{-\frac{m}{n}x + \dots} = \frac{n^2}{m^2} = n \rightarrow m^2 = n$$

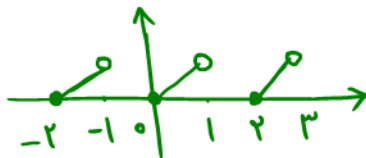
$$m = -\sqrt{n}$$



سایت کنکور

**Konkur.in**

$$y = x - [x] \quad \begin{matrix} \leq \\ \downarrow \\ < 1 \end{matrix}$$

زنج  $[x]$ 

$$y = |x - [x - a]| \quad \text{فر } [x] \Rightarrow y = [x - a] - x$$

با توجه به نمودار بران به نوشتگی

حد بااع در نقاط زنج باید منفی باشد.

$$\lim_{x \rightarrow (2k)^-} [x - a] - x = 0 \rightarrow [(2k)^- - a] - 2k = 0$$

$$x \rightarrow (2k)^-$$

$$[2k - a] = 2k$$

$$\xrightarrow{\text{تبدیل}} 2k \leq 2k - a < 2k + 1$$

$$\xrightarrow{k=0} 0 \leq -a < 1 \rightarrow -1 < a \leq 0$$

طبق فرض  $a < -1$ 

در نتیجه معادله بران وجود ندارد.

سایت کنکور

Konkur.in



$$f(x) = \frac{x}{1-x|x|} \quad D_f = \mathbb{R} - \{1\}$$

$$x|x| = 1 \begin{cases} x > 0 \rightarrow x^2 = 1 \rightarrow x = 1 \\ x < 0 \rightarrow -x^2 = 1 \quad \times \end{cases}$$

$$f(x) = \begin{cases} \frac{x}{1-x^2} & x \geq 0 \\ \frac{x}{1+x^2} & x < 0 \end{cases} \rightarrow f'(x) = \begin{cases} \frac{1-x^2+2x^2}{(1-x^2)^2} & x > 0 \\ \frac{1+x^2-2x^2}{(1+x^2)^2} & x < 0 \end{cases}$$

$$f'(x) = \begin{cases} \frac{1+x^2}{(1-x^2)^2} & x \geq 0 \\ \frac{1-x^2}{(1+x^2)^2} & x < 0 \end{cases} \quad \begin{array}{l} \text{طول نگاه بکنی} \\ f'(x) = 0 \end{array} \left\langle \begin{array}{l} 1-x^2 = 0 \quad x < 0 \\ \rightarrow x = -1 \end{array} \right.$$

سایت کنکور

Konkur.in

$$3 \leftarrow \boxed{18}$$

$$f(x) = |fx - 3| \sqrt{ax}$$

$$f'(x) = \frac{f(fx - 3)}{|fx - 3|} \sqrt{ax} + \frac{a}{2\sqrt{ax}} |fx - 3| = \begin{cases} f\sqrt{ax} + \frac{a(fx - 3)}{2\sqrt{ax}} & x > \frac{3}{f} \\ - & x < \frac{3}{f} \end{cases}$$

$$f'_+\left(\frac{3}{f}\right) = f\sqrt{ax \cdot \frac{3}{f}} = 2\sqrt{3a}$$

$$f'_-\left(\frac{3}{f}\right) = -2\sqrt{3a}$$

$$\rightarrow f\sqrt{3a} = 2\sqrt{4}$$

$$2\sqrt{3a} = \sqrt{4}$$

$$f \times 3a = 4 \rightarrow \boxed{a = \frac{1}{f}}$$

سایت کنکور

Konkur.in

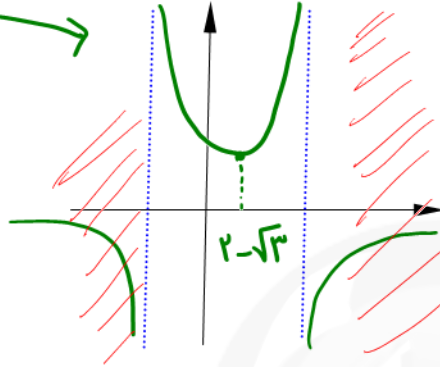
$$f(x) = (m^2 - 1)x^2 + (2 - m)x + 5$$

$\alpha, \beta$  جذبان صاف و متنوع.

$$\Delta > 0 \rightarrow (m-2)^2 - 4(m^2-1)5 > 0 \rightarrow \frac{-2-2\sqrt{115}}{19} < m < \frac{-2+\sqrt{115}}{19}$$

$$\alpha + \beta = -\frac{b}{a} = \frac{m-2}{m^2-1} \rightarrow f'(m) = \frac{m^2-1-2m(m-2)}{(m^2-1)^2} = 0 \rightarrow m = 2 \pm \sqrt{3}$$

نقطه  
 $f(m) = \frac{m-2}{m^2-1}$



$$m = \frac{-2-2\sqrt{115}}{19}$$

$$m = \frac{-2+2\sqrt{115}}{19}$$

سایت کنکور

Konkur.in