

پاسخ تشریحی

کنکور کبیر ۲۰۲۳ ۱۴

درس ریاضی

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@konkur_in

$$iii) -mn^2 + mn + 1 = -m - n \quad (3)$$

$$mn^2 + (-1-m)n + (-1-m) = 0$$

$$\Delta < 0 \Rightarrow 1 + m^2 + 4m - 4m(-1-m) < 0$$

$$\Rightarrow m^2 + 4m + 1 + 4m + 4m^2 < 0$$

$$\Rightarrow 5m^2 + 8m + 1 < 0$$

$$a+b+c = 0$$

$$\boxed{-\frac{1}{5} < m < -1}$$

$$\begin{cases} -\frac{c}{a} = n_1 \\ -1 = n_2 \end{cases}$$

جواب صحیح

$$iv) g^{-1}(a) = b \Rightarrow g(b) = a \quad (4)$$

$$\Rightarrow f(b) = -\sqrt{b} \Rightarrow f^{-1}(-\sqrt{b}) = b = \frac{1}{\epsilon}$$

$$\Rightarrow g\left(\frac{1}{\epsilon}\right) = a \quad g\left(\frac{1}{\epsilon}\right) = -\left|\frac{1}{\epsilon}\right| \sqrt{\frac{1}{\epsilon}} = -\frac{1}{\epsilon} \times \frac{1}{\sqrt{\epsilon}} = -\frac{1}{\epsilon^{3/2}}$$

$$11 \text{ م}) \begin{cases} \alpha + \beta = -\frac{f}{\gamma \omega \alpha} \\ \alpha \cdot \beta = \frac{b}{\gamma \omega \alpha} \end{cases} \Rightarrow \gamma \omega \alpha^2 = 1 \Rightarrow \alpha = \pm \frac{1}{\omega} \quad (1)$$

$$\alpha = +\frac{1}{\omega} \Rightarrow \beta = -\frac{\gamma a}{\gamma \omega} \times \frac{1}{\omega} \quad \beta < \alpha \quad \checkmark$$

$$\alpha = -\frac{1}{\omega} \Rightarrow \beta = +\frac{\gamma a}{\gamma \omega} \quad \beta > \alpha \quad \checkmark$$

$$x_s = -\frac{b}{\gamma a} = -\frac{f}{\omega \alpha} = -\frac{f}{\omega \cdot x - \frac{1}{\omega}} = \frac{\gamma}{\omega}$$

$$y_s = f\left(\frac{\gamma}{\omega}\right) = -\frac{f}{\omega} + \frac{\gamma}{\omega} + \frac{\gamma a}{\gamma \omega} > 0$$

$$\begin{cases} x_s > 0 \\ y_s > 0 \end{cases} \Rightarrow \text{بيع اول}$$

114)

$$-\varepsilon < \frac{1}{n-p} < 0$$

(3)

$$\textcircled{1} \frac{1}{n-p} < 0 \Rightarrow n-p < 0 \Rightarrow \boxed{n < p} \textcircled{I}$$

$$\textcircled{2} \frac{1}{n-p} > -\varepsilon \Rightarrow \frac{1}{n-p} + \varepsilon > 0$$

$$\Rightarrow \frac{1 + \varepsilon n - 1p}{n-p} > 0 \Rightarrow \frac{\varepsilon n - 1}{n-p} > 0$$

$$\textcircled{I} \Rightarrow +n-p < 0 \Rightarrow \varepsilon n - 1 < 0 \Rightarrow \boxed{n < \frac{1}{\varepsilon}}$$

$$\boxed{n = p \quad n = 1}$$

$$n \neq p$$

مساواة (substitution)

115)

$$y_2 \begin{cases} (n-1)n = n^p - n \\ (1-n)n = n - n^p \end{cases}$$

$$n > 0 \quad \textcircled{2}$$

$$n < 0$$

$$y_2 \begin{cases} \varepsilon n - 1 & n > 0 \\ 1 - \varepsilon n & n < 0 \end{cases}$$

$$y_2 < 0 \Rightarrow \begin{cases} \varepsilon n - 1 = 0 & n > 0 \\ n < \frac{1}{\varepsilon} \\ 1 - \varepsilon n < 0 & n < 0 \\ n > \frac{1}{\varepsilon} & n = \emptyset \end{cases}$$

$$\Rightarrow (a+b) = \left(0, \frac{1}{\varepsilon}\right) \Rightarrow \boxed{a+b = \frac{1}{\varepsilon}}$$

$$114) \begin{cases} f(0) = \frac{r}{r} \Rightarrow 1 + Cx^{r^a} = \frac{r}{r} \\ f(1) = 0 \Rightarrow 1 + Cx^{r^a+b} = 0 \end{cases}$$

(2)

$$\Rightarrow \boxed{Cx^{r^a} = -\frac{1}{r}} \quad \boxed{b = +1}$$

$$f(-1) = 1 + Cx^{r^a} \times x^{r^{-b}} = 1 + \left(-\frac{1}{r}\right) \left(\frac{1}{r}\right)$$

$$\boxed{f(-1) = 1 - \frac{1}{r} = \frac{r-1}{r}}$$

$$115) f(r) = \frac{1}{r} \Rightarrow f^{-1}\left(\frac{1}{r}\right) = r \Rightarrow a = r^r$$

(3)

$$116) \tan(\pi - \alpha) = -\tan \alpha = \frac{1}{r} \Rightarrow \frac{r}{r} = \frac{r}{r}$$

(4)

$$\Rightarrow \tan \alpha = -\frac{r}{r} \quad \cot \alpha = \tan\left(\frac{\pi}{r} - \alpha\right) = \boxed{-\frac{r}{r}}$$

$$117) \frac{r \cos(110^\circ + 4r) - r \sin(90^\circ + 4r)}{\sin(110^\circ + 4r) - \cos(4r + 4r)}$$

$$C, 4r = P, 4r^2$$

(5)

$$= \frac{-r \cos 4r - r \cos 4r}{- \sin 4r - \sin 4r} = \frac{-2r \cos 4r}{-2 \sin 4r} = \boxed{\frac{r \cos 4r}{\sin 4r} = \frac{r}{r}}$$

(2)

120) $\cancel{\gamma} \sin n \cos n - \frac{1}{\gamma} \sin^2 n \cos n = 0$

$\sin n \cos n (1 - \gamma \sin n) = 0$ $\left\{ \begin{array}{l} \sin n \cos n = 0 \\ \frac{1}{\gamma} - \gamma \sin n = 0 \end{array} \right.$

$\left\{ \begin{array}{l} \sin n = 0 \\ \cos n = 0 \end{array} \right. \Rightarrow \boxed{n = -\frac{\pi}{4}, 0, \frac{\pi}{4}}$

$\sin n = \frac{1}{\gamma} \Rightarrow \boxed{n = \frac{\pi}{4}, \frac{5\pi}{4}}$ جواباً و جواباً
(-0.92), 1)

(3)

121) $T = \frac{\sqrt{a}}{\epsilon} - \frac{\gamma a}{\epsilon} = \gamma a$

$\gamma a = \frac{\gamma a}{|a|} \Rightarrow |a| = 1$ $\epsilon = \frac{\gamma a}{|a|} = \gamma a$

(4)

122) $\lim_{n \rightarrow 1} f(n) = \lim_{n \rightarrow 1} \frac{(f+g)(n) + (f-g)(n)}{\gamma}$

$n \rightarrow 1^+$ $\lim_{n \rightarrow 1^+} f(n) = \frac{0 + a}{\gamma} = \gamma a$

$n \rightarrow 1^-$ $\lim_{n \rightarrow 1^-} f(n) = \frac{\gamma + \gamma}{\gamma} = \gamma a$

$\lim_{n \rightarrow 1} f(n) = \gamma a$

143)

$$\lim_{n \rightarrow \frac{1}{r}}$$

$$n < \frac{1}{r} \Rightarrow -n > -\frac{1}{r} \quad \text{①}$$

$$[-n] = -1$$

$$n > \frac{1}{r} \Rightarrow \lfloor -n \rfloor < 0 \rightarrow a + \lfloor -n \rfloor > 0$$

$$\Rightarrow \lim_{n \rightarrow \frac{1}{r}^+} \frac{a - \lfloor n \rfloor}{1 - \lfloor n \rfloor} = -\infty \Rightarrow a - \lfloor n \rfloor > 0$$

$$\frac{a > \lfloor n \rfloor}{\frac{1}{a} < \frac{1}{\lfloor n \rfloor}}$$

~~$$\lim_{n \rightarrow \frac{1}{r}}$$~~

~~$$\lim_{n \rightarrow \frac{1}{r}}$$~~

$$\frac{\frac{1}{a} < \frac{1}{\lfloor n \rfloor}}{\frac{1}{a} - 1 < \frac{1}{\lfloor n \rfloor} - 1}$$

$$\lim_{n \rightarrow \frac{1}{r}} \left[n \left(\frac{1}{a} - 1 \right) \right] \Rightarrow nx - \frac{x}{r} < \frac{1}{r}x - \frac{x}{a} \quad \left[-\frac{1}{r} \right] = -1$$

144)

$$\lim_{n \rightarrow 0^+} f(n) = 0 - \lfloor n \rfloor = -\lfloor n \rfloor \quad \text{①}$$

$$\lim_{n \rightarrow 0^-} f(n) = -b - \lfloor n \rfloor$$

$$-\lfloor n \rfloor = -b - \lfloor n \rfloor$$

$$\Rightarrow b = 0$$

$$f(b) = f(0) = 0 - \lfloor n \rfloor = -\lfloor n \rfloor \Rightarrow \frac{a}{f(b)} = \frac{a}{-\lfloor n \rfloor} = \left[-\frac{1}{r} \right]$$

$$140) \quad m_d = \frac{l}{V}$$

(2)

$$m_y = \frac{a(r_n+1) - r^n(a_n-1)}{(r_n+1)^r} = \frac{a+r^n}{(r_n+1)^r}$$

$$\frac{a+r^n}{(r_n+1)^r} = \frac{l}{V} \Rightarrow (r_n+1)^r = V(a+r^n)$$

$$\Rightarrow n = \frac{\sqrt[r]{Va+r^n} - 1}{r}$$

$$\text{سواء } \Rightarrow a = r \Rightarrow n = \frac{V-1}{r} = r \Rightarrow y_d = 1$$

$$\Rightarrow y = \frac{r^n - 1}{r^n + 1} \quad f(r) = \frac{V}{V} = 1 \Rightarrow a = r\sqrt{V}$$

124)

$$\frac{f(0) - f(-1)}{0 - (-1)} = -11$$

= -11

ε

$$\begin{cases} f(0) = 1 \\ f(-1) = \Lambda(-a+1) \end{cases}$$

⇒

$$\frac{1 - (-\Lambda a + \Lambda)}{1} = -11$$

= -11

$$\Rightarrow \Lambda a - \Lambda = -11$$

$$\Lambda a = \epsilon \quad \boxed{a = \frac{1}{\epsilon}}$$

$$f'(x) = \epsilon(\epsilon x)(x^{\epsilon+1})^{\epsilon} \left(\frac{1}{\epsilon} x + 1\right) + \frac{1}{\epsilon}(x^{\epsilon+1})^{\epsilon}$$

$$-\epsilon a = -1 \Rightarrow f'(-1) = \epsilon(-\epsilon)(\epsilon)^{\epsilon} \left(\frac{1}{\epsilon}\right) + \frac{1}{\epsilon}(\epsilon)^{\epsilon}$$

$$\Rightarrow f'(-1) = -\epsilon \epsilon \times \frac{1}{\epsilon} + \epsilon = -\epsilon + \epsilon = -\Lambda$$

125) $y' = 0 \Rightarrow \epsilon n^{\epsilon} - \epsilon = 0 \Rightarrow n = \pm \epsilon$

1

$$n = +\epsilon \Rightarrow y = \Lambda - \epsilon \epsilon + \epsilon = -\epsilon \rightarrow \min$$

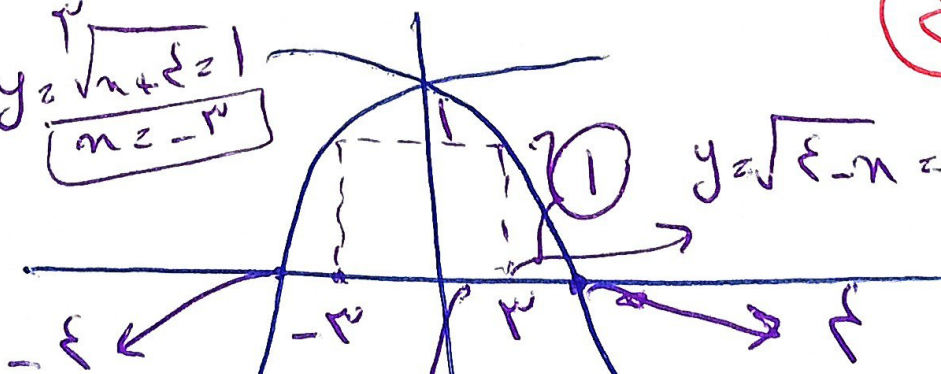
$$n = -\epsilon \Rightarrow y = -\Lambda + \epsilon \epsilon + \epsilon = +\epsilon$$

127)

$$y = \sqrt{n + \epsilon} = 1 \quad \boxed{n = -\epsilon}$$

ε

$$y = \sqrt{\epsilon - n} = 1 \quad \boxed{n = \epsilon}$$



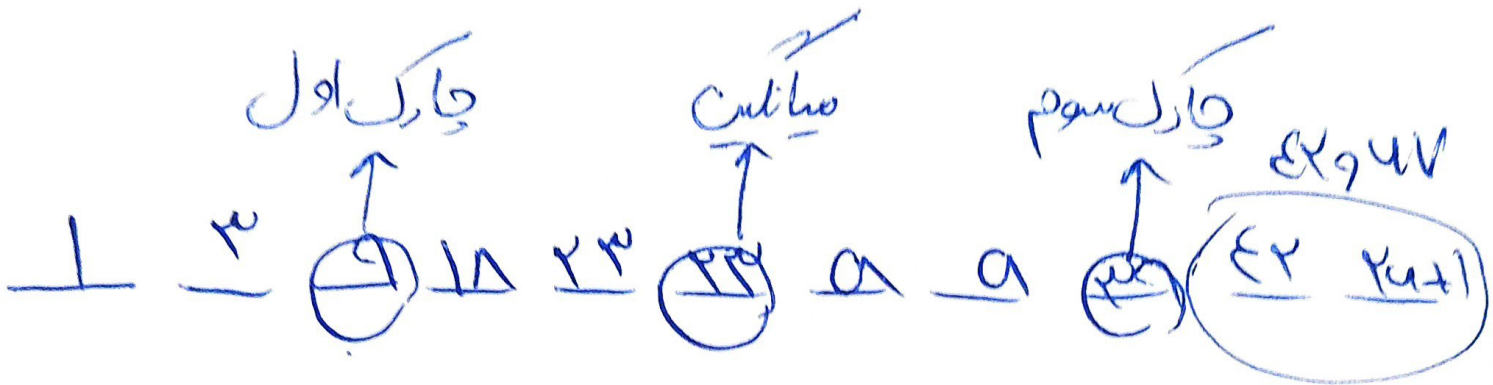
Ukuran Jwb = 4
Ukuran (poin) = 1

$$S = 4 \times 1 = 4$$

(۴)

۱۲۹)

کل از طریق کم و زیاد کردن داده ها



۲۳ ۱۸ ۳ ۲۳ ۳ ۴۷ ۳ ۴۲ ۲۰+۱

||

$$\frac{2a + 44 + 18}{a} = 24 \Rightarrow 2a = 13 - 44 = 44$$

$$2a + 1 = 47 \leftarrow a = 23$$

$$\frac{47 + 42}{2} = 44.5$$

۱۳۰)

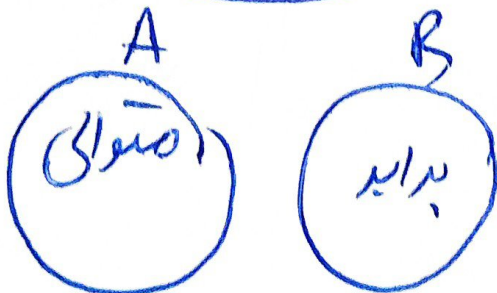


$$4! \times 3! = 24 \times 6 = 144$$

تفاوت

(۳)

۱۳۱)



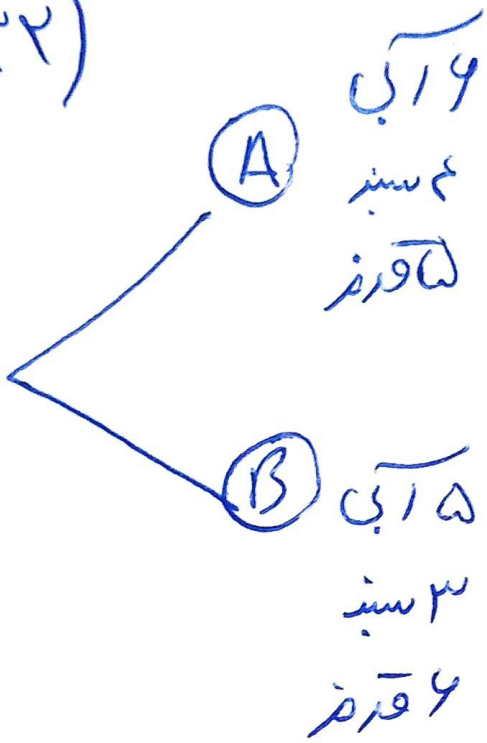
$$P(A \cup B)' = 1 - P(A \cup B)$$

$$P(A \cap B) = 0$$

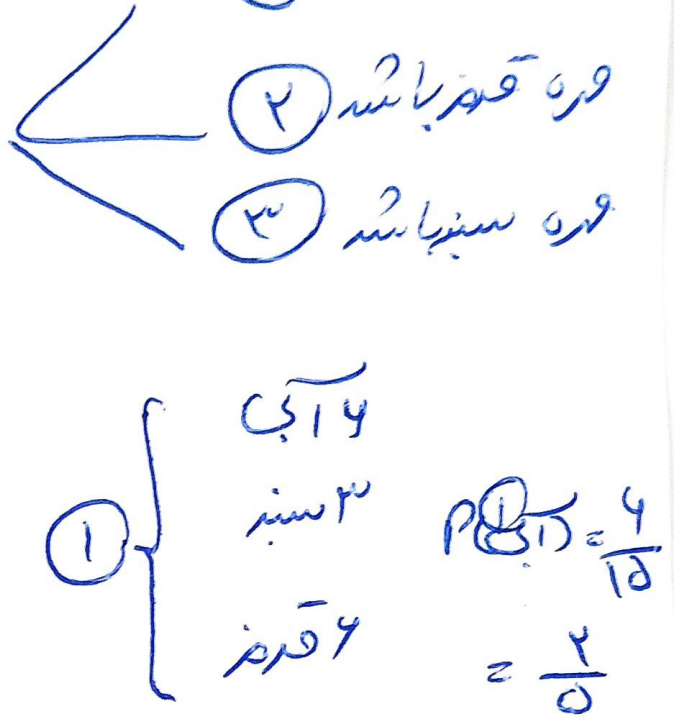
$$= 1 - (P(A) + P(B)) = 1 - \left(\frac{10}{34} + \frac{4}{34}\right) = \frac{20}{34}$$

(۲)

۱۳۲)



- ① قره آبی باشد
- ② قره قرمز باشد
- ③ قره سبز باشد



- ② { آبی ۵ سبز ۳ قرمز ۷

$$P(\text{آبی } ②) = \frac{5}{15} = \frac{1}{3}$$

①

جواب = $\frac{4}{15} + \frac{1}{3} + \frac{4}{15}$

- ③ { آبی ۵ سبز ۴ قرمز ۶

$$P(\text{آبی } ③) = \frac{5}{15} = \frac{1}{3}$$

$$= \frac{4 + 5 + 4}{15 \times 3 \times 9}$$

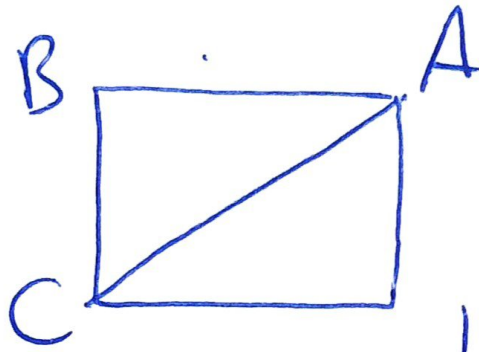
$$P(\text{آبی}) = \frac{4 + 5 + 4}{15 \times 3 \times 9} \Rightarrow P(\text{آبی}) = \frac{13}{45}$$

$$P(1) = \frac{4}{15} = \frac{2}{5} \text{ و } P(2) = \frac{5}{15} = \frac{1}{3} \text{ و } P(3) = \frac{4}{15}$$

جواب = $P(1)P(\text{آبی } ①) + P(2)P(\text{آبی } ②) + P(3)P(\text{آبی } ③)$

$$= \left(\frac{2}{5} \times \frac{2}{5}\right) + \left(\frac{1}{3} \times \frac{1}{3}\right) + \left(\frac{4}{15} \times \frac{1}{3}\right)$$

133) (P)



$$|AC| = \sqrt{r^2 + l^2} \sqrt{2}$$

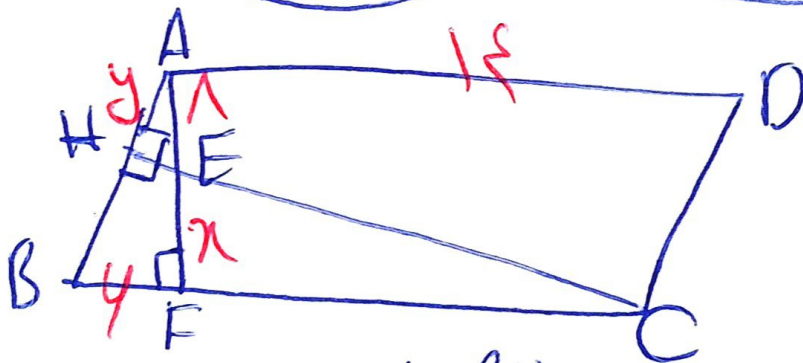
$$|AC| = \sqrt{2} |AB|$$

$$\Rightarrow |AC|^2 = 2 |AB|^2 \Rightarrow d = \sqrt{2} |AB|^2 \Rightarrow |AB|^2 = \frac{d}{\sqrt{2}}$$

$$\Rightarrow (x_B - x_A)^2 + (y_B - y_A)^2 = \frac{d}{\sqrt{2}}$$

$$\left(\frac{r}{\sqrt{2}}\right)^2 + \left(\frac{l}{\sqrt{2}}\right)^2 = \frac{d}{\sqrt{2}} \Rightarrow \sqrt{r^2 + l^2} \sqrt{2} \left(\frac{1}{\sqrt{2}}\right) = \frac{d}{\sqrt{2}} \leftarrow \text{Solve}$$

134)



$$\triangle ABF \sim \triangle BFC \Rightarrow \frac{AB}{BC} = \frac{AF}{FC} = \frac{BF}{BF}$$

$$\triangle AHE \sim \triangle ABF \Rightarrow \frac{HE}{BF} = \frac{AE}{AB} = \frac{AH}{AF}$$

$$y^2 + HE^2 = y^2$$

$$y^2 + (l+r)^2 = (y+BF)^2$$

104)

$$\frac{\sqrt{V} + \sqrt{1-E}}{E\sqrt{V} + \sqrt{1-E}} \times \frac{E\sqrt{V} - \sqrt{1-E}}{E\sqrt{V} - \sqrt{1-E}}$$

(2)

$$B = \frac{1 - \sqrt{2A} + E\sqrt{2A} - 1E}{E\sqrt{2A} - 1E} = \frac{E\sqrt{2A} - 1}{1A}$$

$$B = \frac{E\sqrt{2A} - 1}{1} \Rightarrow EB = \frac{E\sqrt{2A} - 1}{1} = E\sqrt{2A} - 1$$

$$\Rightarrow EB + 1 = E\sqrt{2A} - 1 + 1 = E\sqrt{2A}$$

$$1^{\text{st}} \text{ V) } n(A-B) = n(A) - n(A \cap B)$$

$$\Rightarrow n(A \cap B) = n(A) - n(A-B)$$

$$\Rightarrow \boxed{n(A \cap B) = n(A)} \quad \textcircled{I}$$

③

$$n(A \cup B) = n(A) + n(B) - n(A \cap B) = \Delta V \quad \textcircled{II}$$

$$n(B-A) = n(B) - n(A \cap B)$$

$$\Rightarrow n(A \cap B) = n(B) - n(B-A)$$

$$\Rightarrow \Delta n(A \cap B) = n(B) \Rightarrow n(A \cap B) = \frac{\Delta}{\omega} n(B) \quad \textcircled{III}$$

$$\textcircled{II}, \textcircled{III} \Rightarrow \boxed{n(A) + n(B) - \frac{\Delta}{\omega} n(B) = \Delta V} \quad \textcircled{IV}$$

$$\textcircled{I}, \textcircled{III} \Rightarrow \cancel{\Delta} \times \frac{\Delta}{\omega} n(B) = n(A) \Rightarrow \boxed{n(B) = \frac{\omega}{\Delta} n(A)} \quad \textcircled{V}$$

$$\textcircled{IV}, \textcircled{V} \Rightarrow n(A) + \frac{\omega}{\Delta} n(A) - \frac{\Delta}{\omega} \times \frac{\omega}{\Delta} n(A) = \Delta V$$

$$\Rightarrow \left(1 + \frac{\omega}{\Delta} \left(\cancel{\frac{\Delta}{\omega}} \right) \right) n(A) = \Delta V \quad \boxed{n(A) = \Delta V}$$

$$\left(1 + \frac{\omega}{\Delta} \right) n(A) = \Delta V \Rightarrow \frac{\Delta + \omega}{\Delta} n(A) = \Delta V$$

$$1^{VA}) \quad \frac{a_1 + \epsilon}{a'_1} \quad , \quad \frac{a_r + \epsilon}{a'_r} \quad \boxed{d' = d}$$

(1)

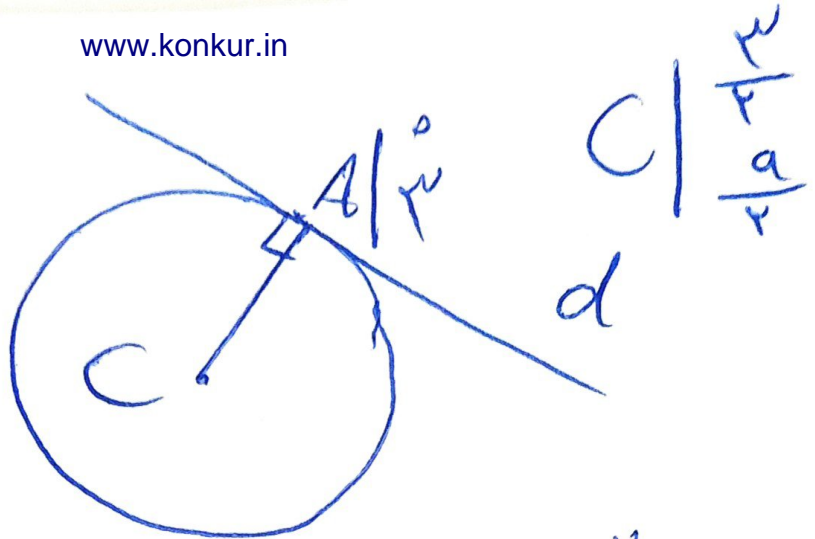
$$\begin{cases} a'_n = a'_1 + (n-1)d' = a_1 + \epsilon + (n-1)d \\ a_n = a_1 + (n-1)d = a_1 + (n-1)d \end{cases}$$

$$\Rightarrow a'_n - a_n = \epsilon$$

$$1^{VA}) \quad \begin{cases} f(1^+) = f(1^-) \\ \sqrt{14^w} + \gamma a = a + d \Rightarrow \gamma + \gamma a = a + d \end{cases} \quad \boxed{a = w} \quad (2)$$

$$f(w) = w \times (w)^\gamma + d = \sqrt{14^w} + d = \boxed{w^\gamma}$$

(٤٥)



$$m_{AC} = -\frac{1}{md}$$

$$md = -\frac{r}{a}$$

$$m_{AC} = \frac{y_C - y_A}{x_C - x_A} = \frac{\frac{a}{r} - r}{\frac{r}{a} - 0} = \frac{r}{a}$$

$$\Rightarrow \frac{a}{r} - r = \frac{r}{a} \Rightarrow \frac{a}{r} = r + \frac{r}{a} = \frac{a^2 + r^2}{a}$$

$$\Rightarrow a = \frac{a^2 + r^2}{r} = 10,5 \Rightarrow \text{درگزینہ کے وجود نسبت!}$$

صوفیاء و صوفیائے پاکستان

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