

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

۳ گویا (111)

$$y=1 \rightarrow x^2 + 2x - r = 1 \rightarrow x^2 + 2x = r$$

$$y=1 \rightarrow -x^2 - 2x + b = 1 \rightarrow -(x^2 + 2x) + b = 1 \rightarrow -r + b = 1$$

$$\rightarrow b = r + 1$$

$$|5x^2 + 73x + 12| < 0 \rightarrow \frac{12}{5} < x < -\frac{1}{5}$$

۱ گویا (112)

$$\left| \frac{x-1}{r} - 1 \right| > r \Rightarrow \begin{cases} \frac{x-1}{r} - 1 > r \rightarrow x > 9 \\ \frac{x-1}{r} - 1 < -r \rightarrow x < -r \end{cases}$$

۱ گویا (113)

$$b - a = -r + \frac{12}{5} = \frac{5}{r}$$

$$m = n = 0 \rightarrow f(x) = -k$$

۳ گویا (114)

$$\left\{ (0, -1), (0, k), (-1, -1), (r+1, r+1) \right\} \Rightarrow \begin{cases} f(x) = 1 \\ f(\sqrt{5}) = 1 \end{cases}$$

$$k = -1$$

$$\frac{1}{|x-a|} - r = \frac{1}{|x|} \xrightarrow{x = \frac{\sqrt{r}}{r}} \frac{1}{\left| \frac{\sqrt{r}}{r} - a \right|} - r = \sqrt{r}$$

$$\rightarrow \left| \frac{\sqrt{r}}{r} - a \right| = 1 - \frac{\sqrt{r}}{r} \rightarrow \begin{cases} a = \sqrt{r} - 1 \\ a = 1 \end{cases} \rightarrow \begin{cases} r = r - 1 = r \\ r = r - \sqrt{r} + 1 = r - \sqrt{r} \end{cases}$$

$$\rightarrow r - \sqrt{r} - r = r - \sqrt{r}$$

$$\alpha\beta^r + \alpha^r\beta = \alpha\beta^r \times \alpha^r\beta \xrightarrow{\div \alpha\beta} \alpha + \beta = \alpha^r\beta^r \quad \text{۲گ} \quad (115)$$

$$\rightarrow \frac{-b}{a} = \frac{c^r}{a^r} \rightarrow \alpha = -\frac{c^r}{b} = \frac{-16}{-8} = 2$$

$$\left. \begin{array}{l} n-2 \geq 0 \rightarrow n \geq 2 \\ 2-n \geq 0 \rightarrow n \leq 2 \end{array} \right\} \Rightarrow n = 2 \quad \text{۳گ} \quad (116)$$

ن در این دو صورت ممکنه
 چون در هر دو جا - حقیقیه

$$y = (\sqrt{x}-1)^2 \rightarrow \sqrt{y} = |\sqrt{x}-1| \quad \text{۳گ} \quad (117)$$

$$\rightarrow \sqrt{x} = \sqrt{y} + 1 \rightarrow x = (\sqrt{y} + 1)^2 \rightarrow g(u) = (\sqrt{u} + 1)^2$$

$$g(1) = 4 \rightarrow g(\varepsilon) = 9$$

$$1) x > 0 \quad \text{۱گ} \quad (118)$$

$$2) \frac{x}{\log \frac{1}{r}} \geq 0 \xrightarrow{x > 0} \log \frac{1}{r} > 0 \xrightarrow{\frac{1}{r} < 1} x < 1$$

$$\textcircled{1} \cap \textcircled{2} : 0 < x < 1 \xrightarrow{x \in \mathbb{Z}} \text{شماره صحیح}$$

$$\tan \alpha = 2$$

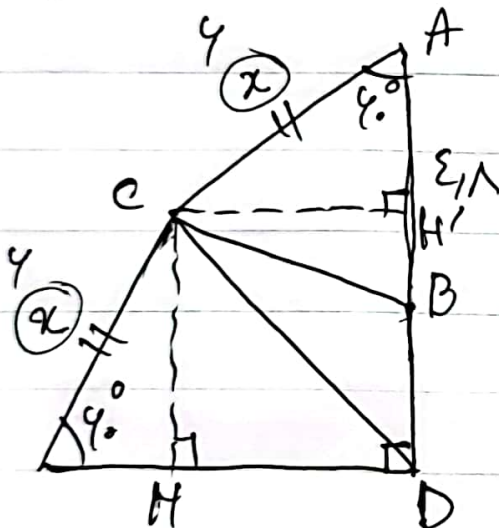
$$\frac{1}{\cos^2 \alpha} = 1 + \tan^2 \alpha = 5 \rightarrow \cos^2 \alpha = \frac{1}{5} \rightarrow \cos \alpha = \frac{-\sqrt{5}}{5}$$

۲۵ (۱۱۹)

$$\frac{-2m}{m^2 - 1} = \sqrt{3} \rightarrow m^2 + \frac{2}{\sqrt{3}}m - 1 = 0$$

۲۶ (۱۲۰)

$$\text{اقتداف دوری} = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{\frac{4}{3} - 4(1)(-1)}}{1} = \sqrt{\frac{16}{3}} = \frac{4}{\sqrt{3}}$$



$$\frac{1}{r} \times r \times \sin 45^\circ = \frac{1}{r} \times 2\sqrt{3}$$

$$\rightarrow r = 2$$

$$CH = \frac{2\sqrt{3}}{r} \times 4 = 2\sqrt{3}$$

$$CD = 2\sqrt{3} \times \sqrt{2} = 2\sqrt{6}$$

مربع CHDH'

$$\cos^2 n = (1 + \sin n)^2 \rightarrow \cos^2 n = 1 + \sin^2 n + 2 \sin n$$

۲۷ (۱۲۲)

$$\rightarrow 2 \sin^2 n + 2 \sin n = 0 \rightarrow 2 \sin n (\sin n + 1) = 0$$

$$\sin n = 0 \rightarrow n = k\pi \rightarrow \text{اقتداف} = \pi \neq 0$$

$$\log_{mn}^{m^2n} = \frac{\log_n^{m^2n}}{\log_n^{mn}} = \frac{\log_n^{m^2} + \log_n^n}{\log_n^m + \log_n^n} = \frac{2a+1}{a+1} \quad \text{✓ (123)}$$

$$= \frac{a+a+1}{a+1} = \frac{a}{a+1} + 1 = b \rightarrow [b] = [1, \dots] = 1$$

98, 94, 91

$$\bar{x} = 94, \quad \sigma = \sqrt{\frac{\Sigma + 0 + \Sigma}{n}} = \frac{\sqrt{11}}{\sqrt{3}}$$

$$\Rightarrow CV = \frac{\frac{\sqrt{11}}{\sqrt{3}}}{94} = \frac{1}{28\sqrt{4}} \quad \text{✓ (124)}$$

$$\begin{cases} \delta - a + b = 0 \rightarrow a - b = \delta \\ 1 + a + b = 0 \rightarrow a + b = -1 \end{cases} \rightarrow \begin{cases} a = 2 \\ b = -3 \end{cases} \quad \text{✓ (125)}$$

$$\left[\frac{b - 2a}{3} \right] = \left[\frac{-3 - 2}{3} \right] = \left[\frac{-5}{3} \right] = [-1, \dots] = -1$$

$$x=1: \lim_{x \rightarrow 1} \frac{x^2}{\Sigma} = \lim_{x \rightarrow 1} \frac{|x-1||x+2|}{x-1 \cdot a(1-x)} \rightarrow -1 = \frac{-3}{a} \quad \text{✓ (126)}$$

$$\rightarrow a = 3$$

$$x=2: \frac{|2\delta + \delta - 2|}{3(-\delta)} = b(\delta - [-\delta]) \rightarrow 1 \cdot b = \frac{-3}{3} \rightarrow b = \frac{-3}{3}$$

$$\rightarrow ab = 3 \left(\frac{-3}{3} \right) = -3 \quad \text{✓}$$

$$a \cos \frac{\pi}{4} - \sin \frac{\pi}{4} = 0 \rightarrow a = \sqrt{2}$$

Σ (127)

$$\sqrt{2} \cos \frac{\pi}{4} - \sin \frac{\pi}{4} \rightarrow 0 \Rightarrow \text{cost} > 0$$

$$\Rightarrow \sqrt{2} \left(\frac{\pi}{4} \right) + b > 0$$

$$\Rightarrow 1/\sqrt{2} + b > 0$$

$$\Rightarrow b > -1/\sqrt{2} \rightarrow b = -1$$

{ شرط منطقی }

$$f'(x) = \frac{1}{2\sqrt{x}} - \frac{1}{\sqrt{a-2x}} = 0 \rightarrow 2\sqrt{x} = \sqrt{a-2x}$$

$$\rightarrow \varepsilon x = a - 2x \rightarrow x = \frac{a}{4}$$

(128)

$$f\left(\frac{a}{4}\right) = \sqrt{\frac{a}{4}} + \sqrt{\frac{\varepsilon a}{4}} = \frac{\sqrt{2a}}{\sqrt{2}} \text{ max}$$

$$f(a/2) = \sqrt{\frac{a}{2}} + 0 = \sqrt{\frac{a}{2}} \text{ min}$$

$$\frac{\sqrt{a}}{\sqrt{2}} \times \frac{\sqrt{a}}{\sqrt{2}} = \sqrt{12} \rightarrow \frac{\sqrt{a}}{\sqrt{12}} = \sqrt{12} \rightarrow a = \varepsilon \rightarrow [\varepsilon] = \varepsilon$$

$$m_f = f(-1) = -1/4$$

Σ (129)

$$g'(x) = \frac{1}{\sqrt[3]{x^3}} f(x) + \sqrt[3]{x} f'(x)$$

$$g'(-1) = \frac{1}{\sqrt[3]{(-1)^3}} (a) + (-1) \left(-\frac{1}{4} \right) = \frac{13}{4}$$

$$P(10) = \frac{1}{15} = \frac{1}{n} \rightarrow n = 15$$

۳ ← ۱۳

$$P(\text{فقط عدد ۱۰ منتهی به ۳}) = \frac{10}{15} \times \frac{9}{14} \times \frac{5}{13} = \frac{10}{91}$$

→ ۳, ۴, ۹, ۱۲, ۱۵

برون آبی اصل: A

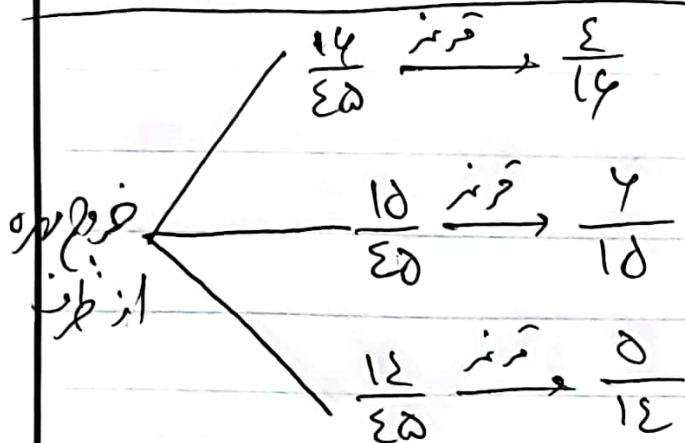
۳ ← ۱۳

B: تیرانی

$$P(A) = \frac{1}{5}, \quad P(B) = \frac{1}{3}, \quad P(B|A) = \frac{1}{3}$$

$$P(A \cap B) = P(A) \times P(B|A) = \frac{1}{5} \times \frac{1}{3} = \frac{1}{15}$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B) = \frac{1}{5} + \frac{1}{3} - \frac{1}{15} = \frac{13}{15}$$



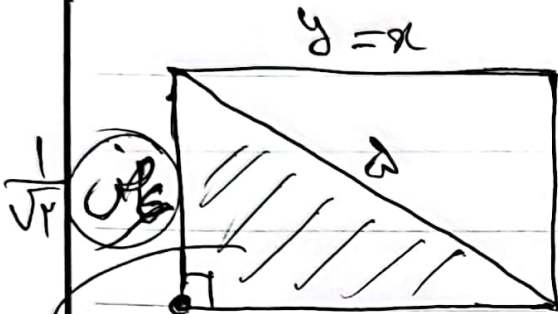
۳ ← ۱۳

$$\frac{14}{45} \times \frac{2}{16} + \frac{15}{45} \times \frac{4}{15} + \frac{14}{45} \times \frac{5}{14} = \frac{1}{3}$$

$$\Delta ABC \sim \Delta ADE \implies \frac{AD}{AE} = \frac{AB}{AC}$$

۱۳۳

$$\implies \frac{۲}{۲} = \frac{x+1}{۱۵} \rightarrow x=۵$$



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

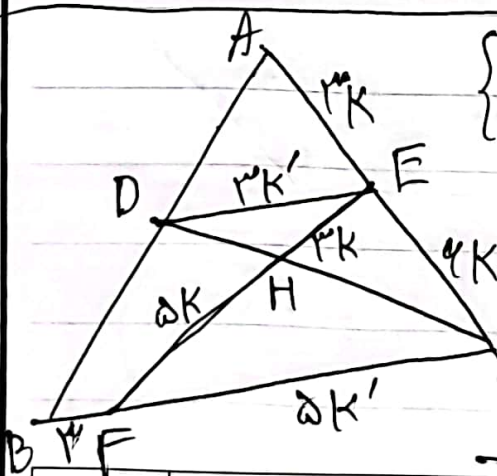
$$\begin{cases} a=1: \begin{cases} y=x \\ y=x+1 \end{cases} \rightarrow (1,2) \checkmark \\ a=-1: \begin{cases} y=-x+2 \\ y=-x+1 \end{cases} \rightarrow (1,1) \checkmark \end{cases}$$

$$(1,2) \quad y=x+1$$

$$\text{مساحت} = \frac{|1-2|}{\sqrt{1+1}} = \frac{1}{\sqrt{2}}$$

$$\text{مساحت} : \text{طول} = \sqrt{۲} - \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\text{مساحت} = \text{طول} \times \text{عرض} = \frac{\sqrt{2}}{2} \times \frac{1}{\sqrt{2}} = \frac{1}{2} = ۰,۵$$



$$\begin{cases} x=۳k \\ y=۵k \end{cases} \quad \frac{EH}{HF} = \frac{DE}{CF} \quad ۱۴۵$$

$$\frac{۳}{۵} = \frac{DE}{CF} \rightarrow \begin{cases} DE=۳k' \\ CF=۵k' \end{cases}$$

$$\frac{AE}{AC} = \frac{DE}{BC} \rightarrow \frac{۳k}{9k} = \frac{۳k'}{۵k'+۳} \rightarrow k' = \frac{۳}{۵}$$

$$\rightarrow BC = ۵\left(\frac{۳}{۵}\right) + ۳ = \frac{۱۵}{۵} + ۳ = ۶,۵$$

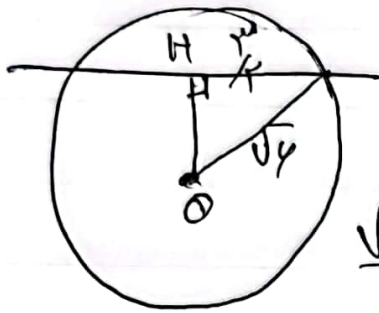
شماره صفحه:

تاریخ تحویل به انتشارات:

نام سرگروه و امضا:

تاریخ تحویل به سرگروه:

نام مولف و امضا:



$O(2, -1), R = \sqrt{4}$

Σ 134

$OH = \sqrt{9 - \frac{a}{2}} = \frac{\sqrt{15}}{2}$

$\frac{\sqrt{15}}{2} = \frac{|-2+2-a|}{\sqrt{2+1}} \rightarrow |a| = \frac{\sqrt{15}}{2}$

$\rightarrow a = \pm \frac{\sqrt{15}}{2} \rightarrow \text{جواب} = \frac{2\sqrt{15}}{2} = \sqrt{15}$
 $= \sqrt{3 \times 5} = 2\sqrt{3}$

$\frac{1}{a^2} = 2\sqrt{a} \xrightarrow{\text{توان } 2} a = 2\sqrt{a} \times a^2$

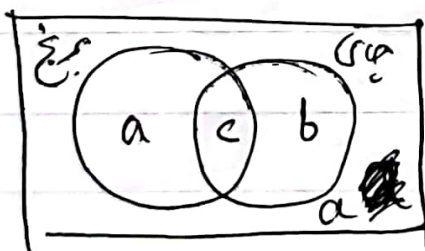
Σ 135

$\xrightarrow{\div a} 1 = (2\sqrt{a})^2 \times a^2 \rightarrow 1 = (2\sqrt{a})^2 \times a^2$

$\xrightarrow{\text{ریشه } 12} 1 = 2\sqrt{a} \times a \rightarrow \frac{1}{a} = \sqrt{2a} = 2\sqrt{a}$

$(\frac{1}{a} - 2) = 2\sqrt{a} - 2 \rightarrow \frac{2\sqrt{a} - 2}{1 + \sqrt{a}} \times \frac{1 - \sqrt{a}}{1 - \sqrt{a}}$

$= \frac{2\sqrt{a} - 2}{-2} = \frac{-1 + 2\sqrt{a}}{-2} = 2 - \sqrt{a}$



$\left. \begin{matrix} b+c = 370 \\ a+c = 200 \\ 2a+b+c = 200 \end{matrix} \right\} \Rightarrow \begin{matrix} a = 45 \\ c = 135 \\ b = 235 \end{matrix}$

Σ 137

خطی a'_n و a_n

۱۳۹

$$\left. \begin{aligned} a_\varepsilon = a'_\varepsilon &\rightarrow a_1 + \varepsilon d = a'_1 + d' \\ a_n = a'_n &\rightarrow a_1 + \varepsilon d = a'_1 + \varepsilon d' \end{aligned} \right\} \ominus \varepsilon d = \varepsilon d' \quad (1)$$

$$a'_0 = 0 \rightarrow a'_1 + \varepsilon d' = 0 \quad (2)$$

$$(1) + (2) \Rightarrow a'_1 + \varepsilon d' = \varepsilon d \Rightarrow a'_1 = \varepsilon d$$

$$\frac{-\frac{\varepsilon}{\varepsilon} m - n}{\varepsilon} + \frac{-m - \frac{\varepsilon}{\varepsilon} m}{\varepsilon} > \frac{1}{\varepsilon \Lambda}$$

$$\frac{-\varepsilon m - \varepsilon n}{\varepsilon} + \frac{-\varepsilon m - \varepsilon n}{\varepsilon} > \frac{1}{\varepsilon \Lambda} \rightarrow -\varepsilon m - \varepsilon n > \frac{1}{\varepsilon \Lambda}$$

$$\rightarrow -\varepsilon m - \varepsilon n > -\Lambda \rightarrow m + n < \varepsilon$$

$$\frac{m, n \in \mathbb{N}}{\max(m^\varepsilon + n^\varepsilon)} \rightarrow \begin{cases} m = \varepsilon \\ n = 1 \end{cases} \rightarrow m^\varepsilon + n^\varepsilon = \Lambda + 1 = 9$$