

محمد حسن محمد حسینی
مؤلف کتاب - و طراح ۱، مؤلف ۲، مؤلف ۳ از کتابی

بسم الله الرحمن الرحيم

$$-\frac{b}{2a} = -1 \Rightarrow \frac{-a}{2} = -1 \Rightarrow a = 2$$

۱۱۱

$$y=1 \begin{cases} x^2 + 2x - 1 = 1 \Rightarrow x = 1, -3 \\ -x^2 + 2x + b = 1 \xrightarrow{x=1} b = 4 \end{cases}$$

$$a = 2 \text{ \& } b = 4 \Rightarrow ab = 2 \times 4 = 8$$

$$15x^2 + 73x + 14 < 0$$

$$(5x+1)(3x+14) < 0 \Rightarrow -\frac{14}{3} < x < -\frac{1}{5}$$

۱۱۲

$$\left| \frac{x-1}{2} - 1 \right| > 3 \Rightarrow \begin{cases} \frac{x-1}{2} - 1 < -3 & \text{①} \\ \frac{x-1}{2} - 1 > 3 & \text{②} \end{cases}$$

$$\text{① } \frac{x-1-2}{2} + c < 0 \Rightarrow \frac{x-3+4}{2} < 0 \rightarrow x < -1$$

$$\text{② } \frac{x-1-2}{2} - c < 0 \Rightarrow \frac{x-3-4}{2} < 0 \Rightarrow x > 7$$

$$-\frac{14}{3} < x < -3$$

استرداد میریم از نقاطی که برابر

$$b - a = \frac{14}{3} - 3 = \frac{5}{3}$$

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

113

$$m = 0 \Rightarrow k = n - 1 = -1 \Rightarrow \text{flat}$$

$$f(\sqrt{5}) = -k = 1$$

$$f(m) = a \Rightarrow \frac{1}{f} = \frac{1}{a} \Rightarrow G(m) = \frac{1}{x-a}$$

114

$$\left| \frac{1}{x-a} \right|^{-2} = \frac{1}{|x|} \quad \xrightarrow{x=\sqrt{x}}$$

$$a = 1$$
$$a = \sqrt{x} - 1$$

$$x - \sqrt{x}$$

اختلاف، زیرا همان اختلاف a مایه است

$$\alpha\beta^r + \alpha^r\beta = \alpha\beta^r \times \alpha^r\beta \xrightarrow{\div \alpha\beta} \alpha + \beta = \alpha^r\beta^r \quad 115$$

$$D = p^r \Rightarrow -\frac{b}{a} = \left(\frac{c}{a}\right)^r \Rightarrow a = \frac{-c^2}{b} = \frac{-16}{-8} = 2$$

$$\left. \begin{array}{l} 2 - x > 0 \\ x - 2 > 0 \end{array} \right\} \Rightarrow x = 2$$

116

$$\xrightarrow{\text{جانبی، می بینیم}} \sqrt{1} = \sqrt{2} - \sqrt{0} \Rightarrow 1 \neq \sqrt{2}$$

فاقد جواب

$$y = (\sqrt{x} - 1)^2 \xrightarrow{x > 1} \sqrt{y} = \sqrt{x} - 1$$

117

$$\Rightarrow \sqrt{x} = \sqrt{y} + 1$$

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

$$g(g(1)) = g(4) = (\sqrt{4} + 1)^2 = (2 + 1)^2 = (3)^2 = 9$$

Date α

No

118

$$\log \frac{1}{2} > 0 \Rightarrow \alpha < 1 \Rightarrow (0, 1)$$

جمع قدرات صیغی وجود ندارد در اینجا صیغی فون

$$\frac{\sin \alpha}{\cos \alpha} = 2 \Rightarrow \tan \alpha = 2$$

 $\cos \alpha$

$$\cos^2 \alpha = \frac{1}{1 + \tan^2 \alpha} = \frac{1}{5} \quad \begin{array}{l} \text{ابع سر} \\ \omega \alpha < 0 \end{array}$$

$$\cos \alpha = -\frac{\sqrt{5}}{5}$$

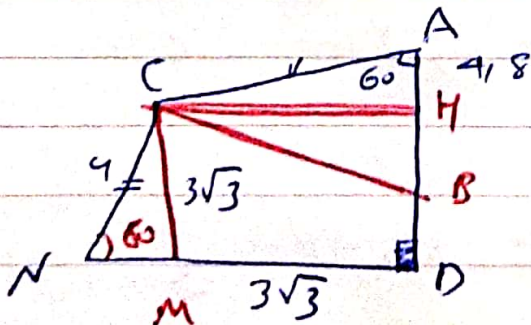
$$\frac{-\sqrt{5}}{5} = \frac{-2\sqrt{5}}{10} \quad \begin{array}{l} \text{مجموعه انرژی} \\ \text{م} \end{array}$$

120

$$\frac{-2m}{m^2 - 1} = \tan 60^\circ = \sqrt{3}$$

$$\sqrt{3}m^2 + 2m - \sqrt{3} = 0 \Rightarrow |m_1 - m_2| = \frac{\sqrt{\Delta}}{|a|}$$

$$\Rightarrow \frac{\sqrt{4+12}}{\sqrt{3}} = \frac{4}{\sqrt{3}}$$

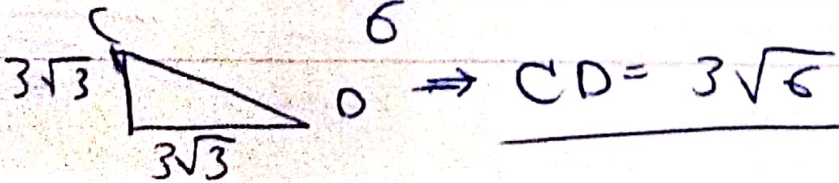


$$\frac{CH \times 4,8}{2} = 7,2\sqrt{3}$$

$$CH = 3\sqrt{3}$$

$$\frac{1}{2} AC \times AB \times \sin 60 = 7,2\sqrt{3} \Rightarrow AC = 6 = CN$$

$$\sin 60^\circ = \frac{CM}{6} \Rightarrow CM = 6 \sin 60^\circ = 3\sqrt{3}$$



$$\Rightarrow CD = 3\sqrt{6}$$

121

$$\frac{\cos n}{1 + \sin n} = \frac{1 + \sin n}{\cos n}$$

2122

$$\text{وگي: } \frac{\cos n}{1 + \sin n} = \frac{1 - \sin n}{\cos n} \Rightarrow \frac{1 - \sin n}{\cos n} = \frac{1 + \sin n}{\cos n}$$

$$\Rightarrow \sin n = 0 \quad \sin n = -1 \quad \text{وگي}$$

$$x = k\pi \Rightarrow \text{انقلاب} = \pi$$

123

$$\log_n^m = a \Rightarrow \frac{\log^m}{\log n} = a$$

$a > 0$

$$b = \log_{mn}^{m^2 n} = \frac{(\log m + \log n)}{\log n + \log n} = \frac{a+1}{a+1} = 1 + \frac{a}{a+1} = 1, \dots$$

$$[b] = 1$$



وگي, CV

414

$$94, 96, 98 \xrightarrow{-96} -2, 0, 2$$

$$\bar{X} = 96 \quad \text{وگي}$$

$$\sigma^2 = \frac{(-2)^2 + (0)^2 + (2)^2}{3} = \frac{8}{3} \Rightarrow \sigma^2 = \frac{8}{3}$$

$$\sqrt{\sigma^2} = \sqrt{\frac{8}{3}} = \sigma = \sqrt{\frac{8}{3}}$$

$$CV = \frac{\sigma}{\bar{X}} = \frac{\sqrt{8/3}}{96} = \frac{2\sqrt{2}}{96\sqrt{3}} = \frac{4}{96\sqrt{6}} = \frac{1}{24\sqrt{6}}$$

125 $\rightarrow n=1$ به ازای هر x که $x=1$ ، x برقرار است!

$$1+a+b=0 \Rightarrow a+b=-1$$

$$x=5 \rightarrow 5-a+b=0 \Rightarrow a-b=5$$

$$\begin{bmatrix} b-19 \\ 3 \end{bmatrix} = \begin{bmatrix} -3-4 \\ 3 \end{bmatrix} \quad a+b=-1$$

$$x=1: \lim_{x \rightarrow 1} \frac{\tan \frac{3\pi}{4}}{x^2+x-2} = \lim_{x \rightarrow 1} \frac{a}{a(1-x)}$$

126

$$\Rightarrow -1 = \frac{-3}{a} \Rightarrow a=3$$

$$x=5: \frac{28}{3 \times (-4)} = b(5 - (-5)) \Rightarrow 10b = -\frac{7}{3}$$

$$b = -\frac{7}{30} \Rightarrow a \times b = -\frac{3 \times 7}{30} = -0.7$$

$$a \cos \frac{\pi}{3} - \sin \frac{\pi}{3} = 0$$

127

$$\Rightarrow a - \frac{\tan \pi}{3} = 0 \Rightarrow a = \sqrt{3}$$

$$\lim_{x \rightarrow \frac{\pi}{3}^+} \frac{\sqrt{3}x+b}{\cos(\sqrt{3}-\tan x)} = -\infty \Rightarrow \frac{\sqrt{3}(\frac{\pi}{3})+b}{0^-} = -\infty$$

$x \rightarrow \frac{\pi}{3}^+$

$$\Rightarrow b + \frac{\pi\sqrt{3}}{3} > 0 \Rightarrow b > -\frac{\pi}{\sqrt{3}}$$

$$b > -1, \dots \Rightarrow \underline{\underline{b = -1}}$$

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

128

$$\Rightarrow \sqrt{a-2x} = 2\sqrt{x} \Rightarrow a-2x = 4 \Rightarrow x = \frac{a}{6}$$

$$f\left(\frac{a}{6}\right) = \sqrt{\frac{a}{6}} + \sqrt{\frac{3a}{2}} = \frac{3}{\sqrt{6}}\sqrt{a}$$

$$f(0) = \sqrt{a}$$

$$f\left(\frac{a}{2}\right) = \sqrt{\frac{a}{2}} \text{ min}$$

$$\Rightarrow \frac{3}{\sqrt{2}}\sqrt{a} = \sqrt{12} \Rightarrow a = 4$$

$$f(-1) = 5, f'(-1) = -\frac{1}{2}$$

129

$$g(x) = \frac{1}{3\sqrt[3]{x^2}} f(x) + \sqrt[3]{x} f'(x)$$

$$g(-1) = \frac{1}{3} f(-1) - f'(-1) = \frac{5}{3} + \frac{1}{2} = \frac{13}{6}$$

$$n = 15$$

$$\Rightarrow \text{بردارش یک یک کرد} \quad \frac{1}{15} \text{ بار}$$

130

$$\{1, 2, \dots, 15\} \Rightarrow$$

ستون صفر تا 15، در هر صف 3 ستون، از هر صف 3 ستون

$$\frac{10}{15} \times \frac{9}{14} \times \frac{5}{13} = \frac{15}{91}$$

5 در صف 3

10 در صف 3

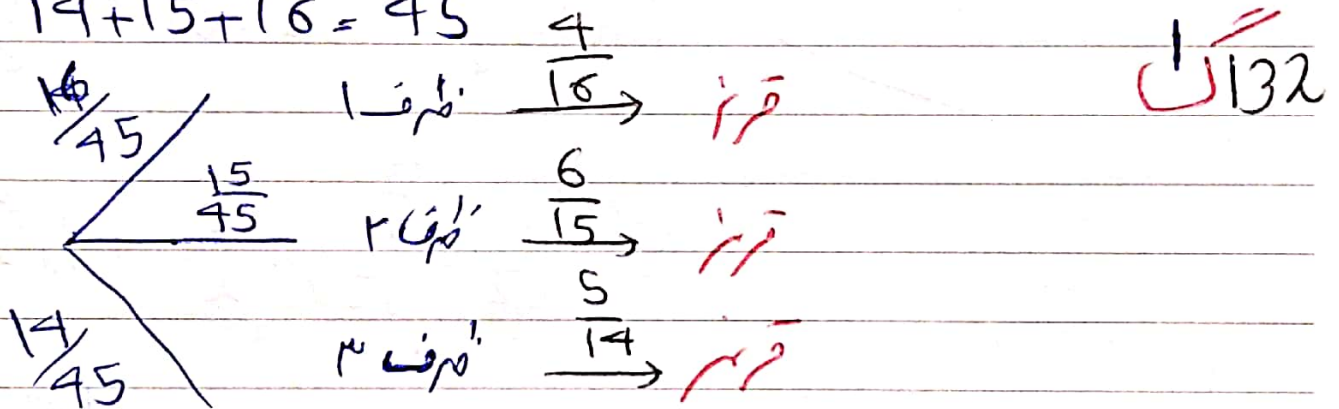
$$P(A) = \frac{1}{5}, P(B) = \frac{1}{3} \rightarrow P(B|A) = \frac{1}{2}$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$= \frac{1}{5} + \frac{1}{3} - \left(\frac{1}{6}\right) = \frac{13}{30}$$

$$P(B|A) = \frac{P(A \cap B)}{P(A)} = \frac{1}{2} \Rightarrow P(A \cap B) = \frac{1}{2} \times \frac{1}{5} = \frac{1}{10}$$

$$14 + 15 + 16 = 45$$



$$P = \frac{4}{45} + \frac{6}{45} + \frac{5}{45} = \frac{15}{45} = \frac{1}{3}$$

$$ADE \sim ABC$$

$$\frac{2}{x+1} = \frac{x}{15} \Rightarrow x^2 + x - 30 = 0$$

$$(x+5)(x-6) = 0$$

$$x = 5 \checkmark$$

$$x = -6 \text{ غير صالح}$$

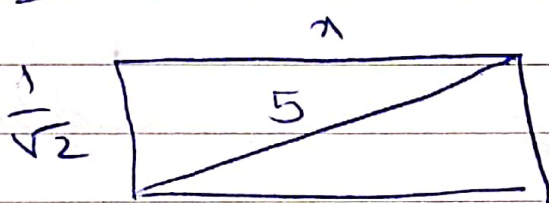
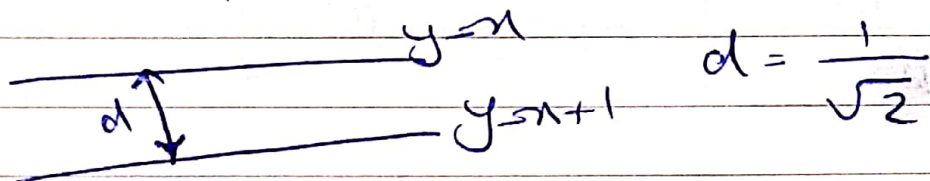
$$y = ax + 1$$

134

$$y = \frac{1}{a}x + 1 - \frac{1}{a}$$

$$\text{برابر} \Rightarrow a = \frac{1}{a} \Rightarrow a = \pm 1$$

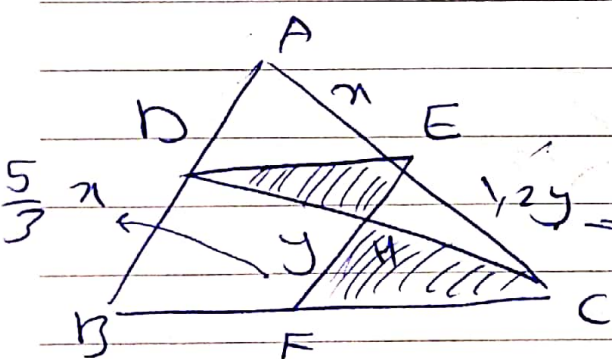
$$a = 1 : \begin{cases} y = x + 1 \\ y = x \end{cases} \quad a = -1 : \begin{cases} y = -x + 1 \\ y = -x + 1 \end{cases}$$



$$x^2 + \frac{1}{2} - 25 \Rightarrow x^2 = \frac{49}{2}$$

$$x = \frac{7}{\sqrt{2}}$$

$$S = \frac{1}{\sqrt{2}} \times \frac{7}{\sqrt{2}} = \frac{7}{2} = 3,5 \checkmark$$



135

$$\triangle ABC: \frac{DE}{BC} = \frac{AE}{AC} = \frac{x}{3x} \Rightarrow DE = \frac{1}{3} BC$$

$$\triangle DEH \sim \triangle CHF \rightarrow \frac{x}{\frac{5}{3}x} = \frac{DE}{DF}$$

$$DE = \frac{3}{5} CF$$

$$\frac{1}{3} BC = \frac{3}{5} CF \Rightarrow BC = \frac{9}{5} CF$$

$$BF = BC - CF = \frac{4}{5} CF = 3 \Rightarrow CF = \frac{15}{4}$$

$$BC = \frac{9}{5} \times \frac{15}{4} = \frac{27}{4} = 6,75 \checkmark$$

$$(x-3)^2 + (y+1)^2 = 6$$

4 | 36

$$O(2, -1) \quad R = \sqrt{6}$$

$$d = \frac{|-r + q - a|}{\sqrt{4+1}} = \frac{|a|}{\sqrt{5}}$$

$$\frac{a^2}{5} + \frac{9}{4} = 6 \Rightarrow \frac{a^2}{5} = \frac{15}{4} \Rightarrow a^2 = \frac{75}{4}$$

$$a = \pm \frac{5\sqrt{3}}{2} \Rightarrow \frac{5\sqrt{3}}{2} - \frac{5\sqrt{3}}{2} = 5\sqrt{3}$$

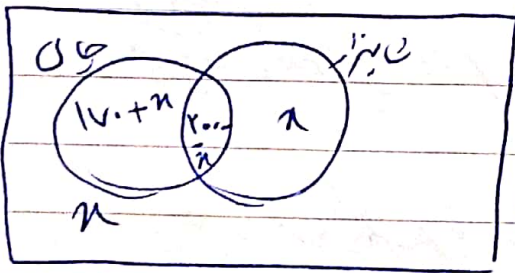
$$a^{1/7} = 27a^{15/7} \Rightarrow 27a^2 = 1$$

1 | 37

$$\frac{1}{a} = 3\sqrt{3} \Rightarrow \frac{3\sqrt{3}-3}{1+\sqrt{3}} \times \frac{\sqrt{3}-1}{\sqrt{3}-1} = \frac{3(\sqrt{3}-1)^2}{2}$$

$$= \frac{3(4-2\sqrt{3})}{2} = 6-3\sqrt{3}$$

1 | 38



$$370 - (200 - x) = 170 + x$$

$$\oplus \rightarrow 370 + 2x = 500$$

$$x = 65$$

$$170 + x = 170 + 65 = 235$$

$$\begin{cases} a_4 = b_2 & b_{10} = 0 \\ a_8 = b_7 & \frac{b_{15}}{d} = 8 \end{cases}$$

1 | 39

$$\frac{b_{10} + 5r}{d} = 0 + \frac{5r}{d} = 5 \times \frac{4}{5} = 4$$

$$a_8 - a_4 = b_7 - b_2$$

$$4d = 5r \Rightarrow \frac{r}{d} = \frac{4}{5}$$

$$(2^3)^{-\frac{2}{3}m} \times (2^2)^{-4} + (2^2)^{-m} \times (2^3)^{-\frac{2}{3}n} > \frac{1}{128}$$

$$2^{-2m} \times 2^{-2n} + 2^{-2m} \times 2^{-2n} > \frac{1}{128}$$

$$2 \left(\frac{1}{2^{2m} \times 2^{2n}} \right) > \frac{1}{128}$$

$$\frac{1}{2^{2m+2n}} > \frac{1}{256} \Rightarrow 2^{2m+2n} < 2^8$$

$$2m+2n < 8 \Rightarrow m+n < 4$$

$m=1$	$n=1$	m^2+n^2	$\left \begin{array}{l} 2 \\ 5 \\ 9 \end{array} \right.$
$m=1$	$n=2$		
$m=2$	$n=1$		

برای این امر این شرحیات همجان باقی است

مهندس محمد مهدی

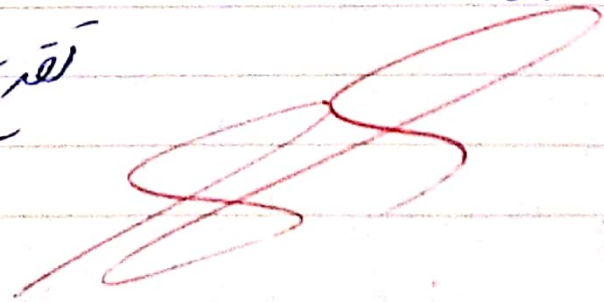
مؤلف کتاب ریاضیات

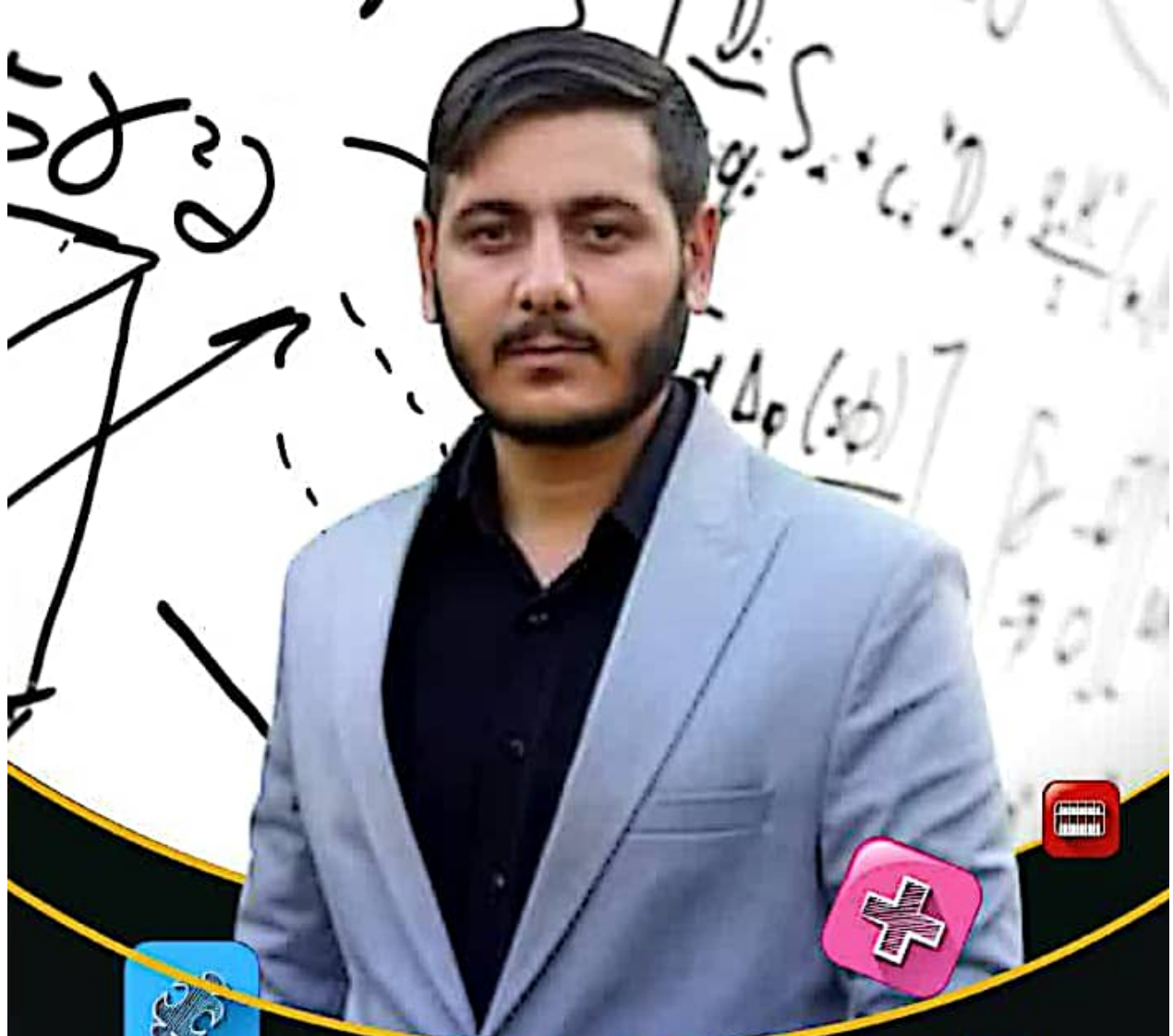
طراح آبیروزی آریانی کانسورادار و سخنی

09147133687

تقدیم به مالک این کتاب

درست است





مؤلف کتاب ریاضیات ریپتیج

طراح ریاضی قلمچی، گاج و ...

مدرس پروازی گاما، یادلاین و فرادرس

عضو انجمن ریاضی ایران

عضو انجمن بیوانفورماتیک ایران

مدرس برنامه نویسی کامپیوتر

مؤلف جمع بندی



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