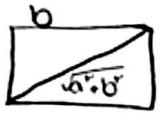


$$\frac{y}{y} = \frac{a}{r} \quad , \quad \frac{y'}{y} = \frac{1+\sqrt{a}}{r} \Rightarrow y=y \quad \frac{r}{a} y = \frac{r}{1+\sqrt{a}} y' \rightarrow y' = \frac{r(1+\sqrt{a})}{a} y$$

$$y = \frac{r}{a} y \quad y = \frac{r}{1+\sqrt{a}} y'$$

$$\frac{S'}{S} = \frac{y' \times y}{y \times y'} = \frac{\frac{r(1+\sqrt{a})}{a} y}{y} = \frac{r+r\sqrt{a}}{a}$$

a 

$$\frac{\sqrt{a^2+b^2}}{b} = \frac{1+\sqrt{a}}{r} \Rightarrow \sqrt{a^2+b^2} = \frac{1+\sqrt{a}}{r} b \quad \text{بمربع} \quad a^2+b^2 = \left(\frac{1+\sqrt{a}}{r}\right)^2 b^2 \Rightarrow$$

$$a^2 = \left(\frac{1+\sqrt{a}-r}{r}\right)^2 b^2 \Rightarrow \left(\frac{b}{a}\right)^2 = \frac{b^2}{\left(\frac{1+\sqrt{a}}{r}\right)^2 b^2} = \frac{r}{1+\sqrt{a}} = \frac{\sqrt{a}-1}{r}$$

$$\sqrt{a^2+r^2} = -1a+r \quad \text{بمربع} \quad a^2+r^2 = 9a^2+r^2-12a \quad \text{بترکیب} \quad 8a^2-12a+r^2=0$$

$$\Delta = 144 - 112 = 32 \Rightarrow a = \frac{14 \pm 4\sqrt{2}}{16} \quad \text{بمربع} \quad 2\sqrt{2} \rightarrow a \neq -1$$

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

$$\frac{\sqrt{9+1} (1-\sqrt{9-1}) - \sqrt{9+1} (1+\sqrt{9-1})}{(9-9+1)} = \frac{9-1}{\sqrt{9-1}} \rightarrow \frac{\sqrt{9+1} (-2\sqrt{9-1})}{10-9} = \frac{9-1}{\sqrt{9-1}} \rightarrow (9 \neq 1, 10)$$

$$\sqrt{9+1} (-2(\sqrt{9-1})) = (10-9)(9-1) \Rightarrow -2\sqrt{9+1} = 10-9 \quad \text{بمربع} \quad 9^2-149+94=0$$

$$\Delta = 192 \rightarrow 9 = \frac{14 \pm 4\sqrt{3}}{2}$$

جوابی، اعدادی نمی تواند منفی باشد

$$\frac{r\sqrt{r-9} - \sqrt{r-9}-r}{(r-r+9)} = \frac{r-9}{a\sqrt{r-9}} \Rightarrow \frac{(-2\sqrt{r-9})(a\sqrt{r-9})}{-10(r-9)} = (r-9)(r+9) \Rightarrow$$

$$-10 = r+9 \rightarrow 9 = -1$$

صحت مسئله مشکوک ندارد

$$\frac{(1-9)^2+9^2}{(9(1-9))^2} = \frac{140}{9} \Rightarrow \frac{((1-9)+9)^2 - 2((1-9)9)}{(9(1-9))^2} = \frac{140}{9} \Rightarrow \frac{1-12}{t^2} = \frac{140}{9}$$

$$9-11t = 140t^2 \rightarrow 140t^2+11t-9=0 \quad \text{بمربع} \quad t^2+11t-140=0$$

$$(t+14)(t-10)=0 \Rightarrow \frac{140}{140} = \frac{14}{10}$$

$$\frac{-11}{140} = -\frac{11}{10}$$

$$\begin{cases} -9^2+9 = \frac{14}{10} \rightarrow -9^2+9 - \frac{14}{10} = 0 \rightarrow S=1 \\ -9^2+9 = -\frac{11}{10} \rightarrow -9^2+9 + \frac{11}{10} = 0 \rightarrow S=1 \end{cases}$$

✓

$$\frac{(x^2 - 4x + 1) \geq 0 \rightarrow \frac{-\infty}{+} \frac{1}{0} \frac{4}{-} \frac{1}{0} \frac{+\infty}{+} \rightarrow 1 \leq x \leq 4$$

$x=4$

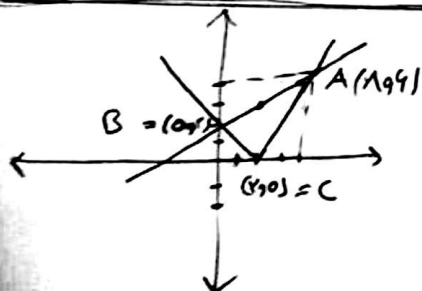
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$$\frac{-x^2 + 4x^2 + 4x - 100 \geq 0 \rightarrow (x-4)(x^2 + 4x) \geq 0 \rightarrow \frac{-\infty}{+} \frac{-4}{0} \frac{4}{-} \frac{10}{0} \frac{+\infty}{+} \rightarrow 4 \leq x \leq 10 \leq x \leq -4$$

$$\frac{\sqrt{4+5} + \sqrt{1+5}}{4} = \frac{3}{4} \Rightarrow x = \frac{3}{4} \rightarrow \text{not valid}$$

$$|x+2| + |x-1| = \frac{14-x}{2} \rightarrow \begin{cases} x=1 & , x > 1 \text{ not valid} \\ x=11 & , -4 \leq x \leq 10 \text{ valid} \\ x=-10 & \rightarrow x=-4, x < -4 \text{ not valid} \end{cases}$$

$$A=(2,4), B=(-4,1) \Rightarrow AB = \sqrt{(2+4)^2 + (4-1)^2} = \sqrt{45} = 3\sqrt{5}$$



$$y = \sqrt{x^2 - 4x + 4} = \sqrt{(x-2)^2} = |x-2|$$

$$y = \frac{1}{2}x + 2 \rightarrow (2,3), (4,4), (0,2)$$

$$|x-2| = \frac{1}{2}x + 2 \rightarrow x-2 = \frac{1}{2}x + 2 \rightarrow (x=1, y=4) = A$$

$$m_{BC} = \frac{0-2}{2-0} = -1 \rightarrow y = -x + 2 \Rightarrow AH = \frac{|-4-1+2|}{\sqrt{1+1}} = \frac{3}{\sqrt{2}} \rightarrow S = \frac{4\sqrt{2} \times \frac{3}{\sqrt{2}}}{2} = 12$$

$$BC = \sqrt{(0-2)^2 + (2-0)^2} = 2\sqrt{2}$$

$\rightarrow + \infty$	10
∞	9
$\rightarrow$	$9-9 \Rightarrow 40-9 = 31$

$$\frac{1}{9} + \frac{1}{9-9} = \frac{1}{10} \Rightarrow \frac{9-9+9}{9^2-9 \cdot 9} = \frac{1}{10} \rightarrow \frac{9^2-4 \cdot 9 \cdot 9 + 110 \leq 0}{(9-40)(9-4) \leq 0} \rightarrow 4 \leq 9 \leq 10$$

$$(9-40)(9-4) \leq 0 \rightarrow 4 \leq 9 \leq 10$$