

۲۰

$$\frac{m-k}{4} = -\frac{1}{4} \Rightarrow -9 = 1(m-k) \Rightarrow |m-k| = 9$$

مختصات نقطه‌ها

مساحت $B \Delta A = \sqrt{\frac{(m-k)^2}{16} + \frac{9^2}{16}} = \sqrt{40} = 2\sqrt{10}$ سوال (۱)

سوال (۲)

$A = (1, 4), B = (3, 1), C = (4, 8), D = (-1, 12)$

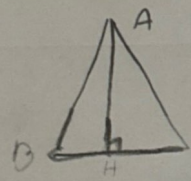
$BC \perp AB \Rightarrow -\frac{3}{4} = m_{AB} \Rightarrow BC = \frac{4}{3} = \frac{y-1}{-3} \Rightarrow y = -1$

$\tan 40^\circ = \sqrt{3} \Rightarrow \frac{-2m}{m^2-1} = \sqrt{3}$ سوال (۳)

$\sqrt{3}m^2 + 2m - \sqrt{3} = 0 \Rightarrow |\alpha - \beta| = \frac{\sqrt{4}}{10}$

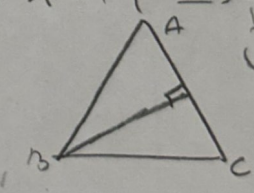
$\frac{\sqrt{4+12}}{\sqrt{3}} = \frac{4}{\sqrt{3}} = \frac{4\sqrt{3}}{3}$

$AH \perp BC \Rightarrow m_{AH} = -\frac{1}{m_{BC}}$ سوال (۴)

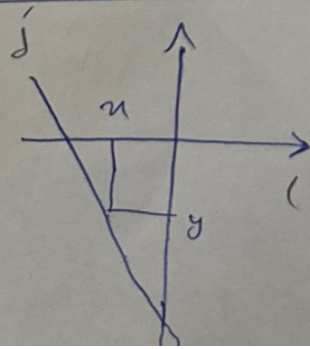


$m_{BC} = +3 \Rightarrow BC: y = +3x + 3$
 $BC \Delta A \text{ مساحت} = \frac{|12 - 3 - 9|}{\sqrt{10}} = \frac{0}{\sqrt{10}} = 0$

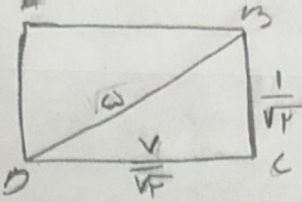
$B \rightarrow \sqrt{5}x = \frac{\sqrt{5}x - 19}{4} \Rightarrow 14 - 5x = \sqrt{5}x - 19 \Rightarrow x = 3$
 $B = (3, 1)$ سوال (۵)



$|3 - 9 - 14| = 22$
 $\frac{22}{\sqrt{10}} = \frac{11\sqrt{10}}{5}$

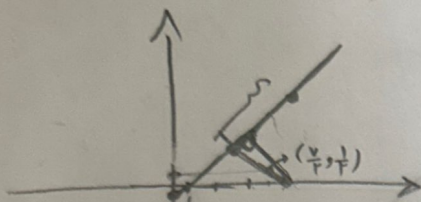


$x = y$
 $(-\frac{4}{3}, 0) (0, -4)$
 $\frac{4}{-3} = -1 \Rightarrow -4x - 6 = x$
 $5x = -6 \Rightarrow x = -\frac{6}{5}$
 $y = -\frac{6}{5}$
 $مساحت = \frac{1}{2} \times \frac{6}{5} \times \frac{6}{5} = \frac{18}{25}$ سوال (۶)



$\frac{1}{a} = \frac{a}{1} \Rightarrow a = \pm 1$
 $a = 1 / y - x = 0 \Rightarrow y - x = 1$
 $a = -1 / -y - x = -2 \Rightarrow y + x = 1$
 $y + x = 2$

$\frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} \Rightarrow DC = \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} = \frac{2}{\sqrt{2}} = \sqrt{2}$
 $\frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = \left(\frac{1}{\sqrt{2}}\right)^2 = \frac{1}{2}$

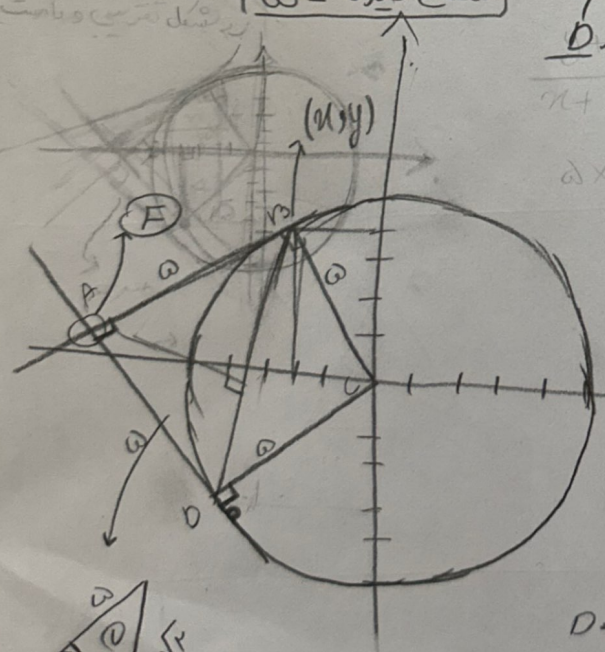


$y = x - 1$
 فاصله از خط $y = x - 1$ تا نقطه $(\frac{3}{4}, \frac{1}{4})$ را پیدا کنید.
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$y = -3x + 12 = \frac{x-1}{3}$
 $-9x + 36 = x - 1 \Rightarrow x = 3/4$ و $y = 9/4$
 حالت ۱: مساحت = $\frac{1}{2} \times \text{طول} \times \text{عرض} = \frac{1}{2} \times \frac{3}{4} \times \frac{9}{4} = \frac{27}{32}$
 حالت ۲: مساحت = $\frac{1}{2} \times \text{طول} \times \text{عرض} = \frac{1}{2} \times \frac{3}{4} \times \frac{9}{4} = \frac{27}{32}$

$\frac{B-a}{\frac{1}{4}} = \sqrt{3} \Rightarrow B-a = \frac{\sqrt{3}}{4} \Rightarrow \sqrt{(B-a)^2 + (\frac{1}{4})^2} = \frac{1}{\sqrt{3}} \Rightarrow \frac{1}{\sqrt{3}} = \frac{1}{\sqrt{3}} \sqrt{3}$

$x \times y = \sqrt{3} \Rightarrow x = -\sqrt{3} \text{ و } y = -\sqrt{3}$
 $\frac{d}{dx} x^2 + \frac{d}{dy} y = 0 \Rightarrow 2x = 0 \Rightarrow x = 0$
 $x = -\sqrt{3}$ و $y = -\sqrt{3}$



$(x+y) = \sqrt{3}$
 $x^2 + y^2 = 4$
 $(ABCD = \text{مربع})$

$14y + 4x = 0 \Rightarrow y = -\frac{7}{2}x$
 $x^2 + \frac{49}{4}x^2 = 4 \Rightarrow \frac{53}{4}x^2 = 4 \Rightarrow x^2 = \frac{16}{53} \Rightarrow x = \pm \frac{4}{\sqrt{53}}$
 $y = \mp \frac{28}{\sqrt{53}}$

$D = (-3, -4)$ و $B = (-4, 3)$
 $(x+y) = \sqrt{3}$
 $m = \frac{1}{\sqrt{3}} \Rightarrow y = \frac{1}{\sqrt{3}}x$
 $\sqrt{(x+4)^2 + (\frac{1}{\sqrt{3}}x-4)^2} = 5 \Rightarrow x^2 + \frac{1}{3}x^2 + 16 + 9 + 8x - \frac{8}{\sqrt{3}}x = 25$