Year. Month. Date. ( ) A یازدهم دختر — تکلیف شماره ۱۷ — سانیا سید محمدی

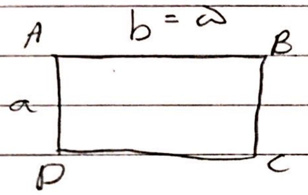
۲۰

۱- $A(-2,k)$ $B(4,m)$ $a=-\frac{1}{2}$

$a=\frac{m-k}{4-(-2)}=-\frac{1}{2} \Rightarrow m-k=-3 \Rightarrow$ اندازه ضلع = فاصله دو نقطه (۲)

$\Rightarrow$ اندازه ضلع $=\sqrt{\underbrace{(4-(-2))^2}_{36}+\underbrace{(m-k)^2}_{9}}=\sqrt{45} \Rightarrow$ $\underline{S=45}$

۲- $A(-1,4)$ $B(3,1)$ $C(x,y)$ $D(-1-x,y+3)$



$m_{AB}=\frac{4-1}{-1-3}=\frac{3}{-4}$ (۲)

$\Rightarrow x_A+x_C=x_B+x_D$

$-1+x=3-1-x$

$m_{BC}=\frac{4}{3}$

$2x=3 \Rightarrow x=\frac{3}{2}$

$b=\sqrt{\underbrace{(3-(-1))^2}_{16}+\underbrace{(1-4)^2}_{9}}=5$

$\frac{4}{3}(3)+h=1 \Rightarrow h=-3$

$a=\sqrt{\underbrace{(\frac{3}{2}-3)^2}_{\frac{9}{4}}+\underbrace{(-1-1)^2}_{4}}=\frac{5}{2}$

$\frac{4}{3}(\frac{3}{2})-3=(-1) \Leftarrow$

$\Leftarrow C(\frac{3}{2},-1)$

$\Rightarrow P=2(5+\frac{5}{2})=15$

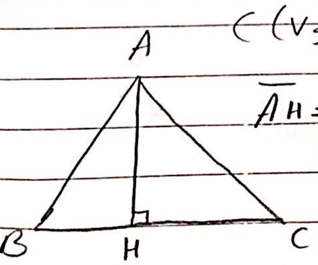
۳- $2mx+(m^2-1)y=3$ $\theta=60^\circ$

$\tan\theta=\sqrt{3} \Rightarrow a=\sqrt{3} \Rightarrow \frac{2m}{1-m^2}=\sqrt{3}$ (۲)

$\sqrt{3}-\sqrt{3}m^2=2m$

$\sqrt{3}m^2+2m-\sqrt{3}=0 \Rightarrow |\alpha-\beta|=\frac{\sqrt{\Delta}}{|a|}=\frac{\sqrt{4-4\sqrt{3}(-\sqrt{3})}}{\sqrt{3}}=\frac{4}{\sqrt{3}}$

۴- $A(1,9)$ $B(3,3)$ $C(7,11)$



$\overline{AH}=\frac{|y-2x+3|}{\sqrt{1^2+2^2}}=\frac{10}{\sqrt{5}}\times\frac{\sqrt{5}}{\sqrt{5}}=2\sqrt{5}$ (۳)

$m_{BC}=\frac{11-3}{7-3}=\frac{8}{4}=2$

$2(3)+h=3 \Rightarrow h=-3 \Rightarrow y=2x-3$

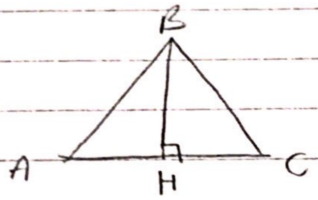
$\overline{AH}=$ فاصله A تا ضلع BC

۵ـ

$AB: y + 2x = 7$ $AC: 4y - 3x = 17$ $BC: 2y - 7x = -19$

$y = \frac{7}{2}x - \frac{19}{2}$

$BH = ?$



محل برخورد دو خط AB و BC ـ مختصات B

⇓

$7 - 2x = \frac{7}{2}x - \frac{19}{2}$

$14 - 4x = 7x - 19$

$33 = 11x \Rightarrow x = 3$

⇓

$B(3, 1)$

$BH = \frac{|4y - 3x - 17|}{5} = \frac{22}{5}$

(۲)

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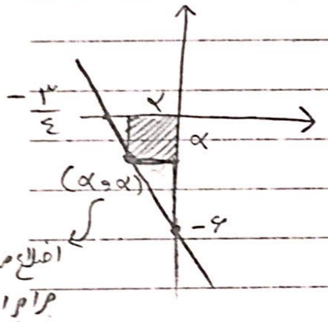


اضلاع مربع با هم برابر است

$y = ax - 6$

$-\frac{3}{4}a - 6 = 0 \Rightarrow -\frac{3}{4}a = 6 \Rightarrow a = 6 \times -\frac{4}{3} = -8$

$y = -8x - 6 \Rightarrow \alpha = -8\alpha - 6$

$9\alpha = -6 \Rightarrow \alpha = \frac{-6}{9} = \frac{-2}{3}$

$\Rightarrow$ قطر $= \frac{2\sqrt{2}}{3}$

(۳)

۷ـ

$y - ax = 1$ $ay - x = a - 1$ ⇐ مقابل هم هستند پس موازی اند

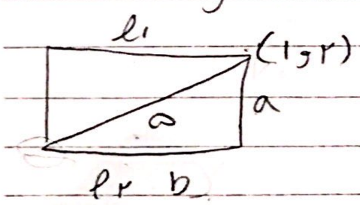
⇓

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

قطر $= 5$ $(1, 2)$ $S = ?$

$a = 1 \Rightarrow y = x + 1$ (l_1) $y = x$ (l_2) ✓ ⇐ $(1, 2)$ در آن صدق می‌کند

$a = -1 \Rightarrow y = -x + 1$ $y = -x - 2$ ✗



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

$b = \frac{3}{\sqrt{2}}$

$\Rightarrow S = \frac{1}{\sqrt{2}} \times \frac{7}{\sqrt{2}} = \frac{7}{2} = 3/5$

$(\frac{1}{\sqrt{2}})^2 + b^2 = 5$

$\frac{1}{2} + b^2 = 25 \Rightarrow b^2 = \frac{49}{2} \Rightarrow b = \frac{7}{\sqrt{2}}$

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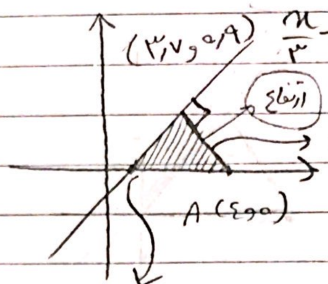
۸ـ $A(4,0)$ $\qquad x-3y=1$



$\frac{x}{3}-\frac{1}{3}$

$3y=x-1 \Rightarrow y=\frac{x}{3}-\frac{1}{3}$ (۳)

$m=-3 \Rightarrow -3(4)+h=0 \Rightarrow h=12$

$-3x+12=\frac{x}{3}-\frac{1}{3}$

طول از مبدأ $\Rightarrow \frac{x}{3}-\frac{1}{3}=0 \Rightarrow x=1$

(۱ و ۰)

$-9x+36=x-1$

$37=10x \Rightarrow x=3.7$

$\frac{37}{30}-\frac{10}{30}=\frac{27}{30}=0.9$

ارتفاع $=\frac{|4-1|}{\sqrt{10}}=\frac{3}{\sqrt{10}}$

قاعده $=\sqrt{(2.7)^2+(0.9)^2}=\sqrt{\frac{810}{100}}=\frac{9\sqrt{10}}{10}$

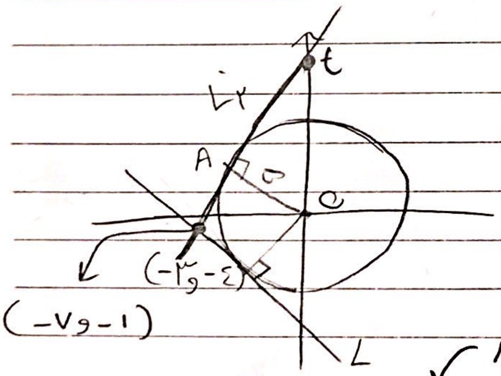
$\Rightarrow \frac{1}{2}\times\frac{3}{\sqrt{10}}\times\frac{9\sqrt{10}}{10}=\frac{2.7}{2}=1.35$

۹ـ $(-\frac{1}{3},b)\qquad(-\frac{1}{2},a)$ (۳)

$m=\sqrt{3} \Rightarrow \frac{a-b}{-\frac{1}{2}+\frac{1}{3}}=\sqrt{3} \Rightarrow a-b=-\frac{\sqrt{3}}{6}$

ضلع مربع $=\sqrt{\underbrace{(a-b)^2}_{\frac{3}{36}}+\underbrace{(-\frac{1}{2}+\frac{1}{3})^2}_{\frac{1}{36}}}=\frac{2}{6} \Rightarrow$ قطر $=\frac{\sqrt{2}}{3}$

۱۰ـ $(-3,-4)$ (۳)



$m=\frac{0-(-4)}{0-(-3)}=\frac{4}{3}$

$m_L=-\frac{3}{4}$

$r=\sqrt{3^2+4^2}=5$

$m_{L_2}=\frac{4}{3}$

$y=\frac{4}{3}x+t \Rightarrow OA=5=\frac{|0+0+t|}{\sqrt{(\frac{16}{9}+1)}}=5$

$\frac{5}{3}$

$-1\times-7=7$

$t=\frac{25}{3}$

$\frac{4}{3}(-7)+\frac{25}{3}=-1=y$

$L \rightarrow -\frac{3}{4}(-3)+h=-4 \Rightarrow h=-\frac{25}{4}$

$25x=-175 \Rightarrow x=-7$

محل برخورد $\Rightarrow \frac{4}{3}x+\frac{25}{3}=-\frac{3}{4}x-\frac{25}{4} \Rightarrow 16x+100=-9x-75$