نام و نام خانوادگی: کیمیا رحیمی ۱۸,۲۵ شماره پاسخنامه: ۱۴

یازدهم هنر A

1

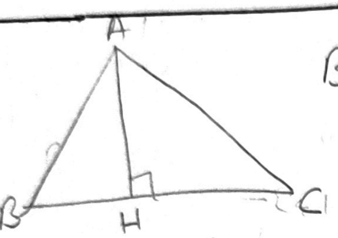
$B(2,8)$, $A(4,-6)$ → $m = \frac{8+6}{2-4} = \frac{14}{-2} = -7$ $\frac{8-6}{2} = 1$ $\frac{2+4}{2} = 3$ (۲)

$(3,1)$

→ عمود منصف → $y = +\frac{1}{7}x + b \xrightarrow{(3,1)} y = \frac{1}{7}x + \frac{4}{7}$

2

$C(-1,3)$, $B(-4,7)$, $A(3,1)$



$BC = \sqrt{(-1+4)^2 + (3-7)^2} = \sqrt{9+16} = 5$

$a_{BC} = -\frac{4}{3}$ (۲)

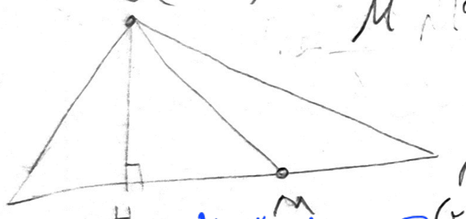
$(x+1)\frac{4}{3} = 7 - y \Rightarrow \frac{16}{3} - \frac{4}{3}x = 7 - y$

$\Rightarrow -4x - 5 = -3y$

AH طول ارتفاع $= \frac{|ax+by+c|}{\sqrt{a^2+b^2}} = \frac{|5-3+12|}{\sqrt{25}} = \frac{10}{5} = 2$

$\Rightarrow BC - AH = 5 - 2 = 3$

3



M: $x \Rightarrow \frac{4+2}{2} = 3$ ✓, $y \Rightarrow \frac{3+1}{2} = 2$ عمود منصف BA $\Rightarrow y = -x+5$

$a_{AB} = \frac{3-1}{2-4} = \frac{2}{-2} = -1 \Rightarrow x + b = y$ (۱,۵)

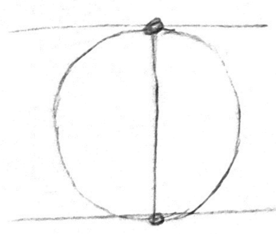
$(-1,-3)$ $-1+3$

$x - 2 = y$

$MH = \frac{|2-3+2|}{\sqrt{1^2+1^2}} = \frac{\sqrt{2}}{2}$

طول $3 - \frac{3}{2} = \frac{3}{2}$ $x - 2 = -x + 5 \rightarrow 2x = 7$ $x = \frac{7}{2}$, $y = \frac{3}{2}$

4



$4y - ax = 2$, $2y - x = 7$ → $\frac{4}{2} = \frac{a}{1} \rightarrow a = 2$

$4y - 2x = 2 \rightarrow 2y - x = 1$ $\frac{|7-1|}{\sqrt{4+1}} = \frac{6\sqrt{5}}{5}$ (۲)

$2y - x = 7 \rightarrow 2y - x = 7$

$\Rightarrow r = \frac{3\sqrt{5}}{5} \Rightarrow S = \left(\frac{3\sqrt{5}}{5}\right)^2 \times \pi = \frac{9}{5}\pi$

5

$(3m-2)x + (5-m)y - 7 = 0 \Rightarrow a = \frac{3m-2}{m-5}$ (۱,۵)

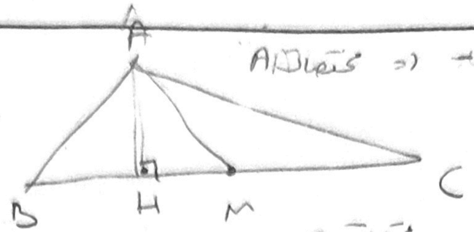
$(m+1)x - (2m-4)y + 1 = 0 \Rightarrow a' = \frac{m+1}{2m-4}$

$\Rightarrow a = -\frac{1}{a'} \Rightarrow \frac{3m-2}{m-5} = \frac{-2m+4}{m+1} \Rightarrow 3m^2 + 3m - 2m - 2 = -2m^2 + 4m + 10m - 20$

$5m^2 - 13m + 18 = 0$ → $m = 1,9$; $m = 1$

$\Delta < 0$ به ازای هیچ مقدار m

$$\begin{cases} AB: x+2y=3 \\ AC: y=2x-1 \\ BC: x+y=4 \end{cases}$$



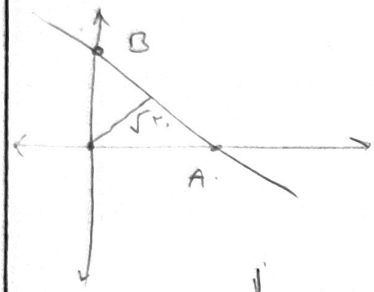
تقاطع AC و AB ⇒ $-\frac{x}{2}+\frac{3}{2} = 2x-1$ ⇒ $-x+3 = 4x-2$ ⇒ $x=1$, $y=1$

تقاطع B ⇒ $-\frac{x}{2}+\frac{3}{2} = -x+4$ ⇒ $x=5$, $y=-1$

تقاطع ⇒ $2x-1 = -x+4$

$AH = \frac{|1-2+4|}{\sqrt{2}} = \sqrt{2}$ $AM = \sqrt{(\frac{7}{3})^2+(-\frac{1}{3})^2} = \frac{5\sqrt{2}}{3}$ $\frac{AM}{AH} = \frac{5}{3}$ $(-\frac{5}{3}, \frac{7}{3})$

۲ — 6



$y = -\frac{1}{2}x + 5 \Rightarrow y = -5$

فاصله مبدا از خط $= \frac{|0+0+b|}{\sqrt{\frac{5}{4}}} = \sqrt{20} \Rightarrow |b| = \frac{\sqrt{5}}{2} \times 2\sqrt{5} = 5$ و -5

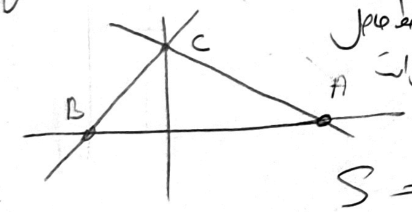
$\Rightarrow y = -\frac{1}{2}x+5 \rightarrow (10,0)$ و $(0,5)$ $\sqrt{(0-10)^2+(0-5)^2} = 5\sqrt{5}$

۲ — 7

$y + mx = x + 2 \Rightarrow y = -mx + x + 2$

$my - 4x = 2m \Rightarrow y = \frac{4x+2m}{m}$

$\Rightarrow \frac{4}{m}(x) = (-m+1)x$



C محل برخورد دو خط است زیرا عرض از مبداها یکسان است ⇒ $C = 2$

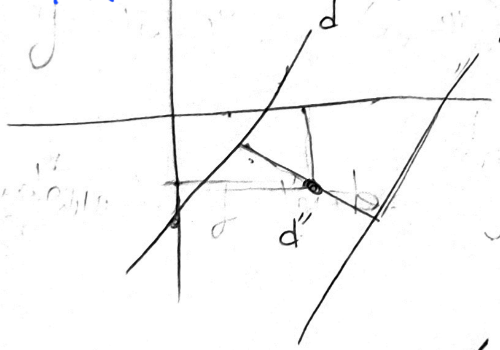
$A + B = \frac{4+m^2-m}{2m-2}$

$S = \frac{1}{2} \times 2 \times \frac{m^2-m+4}{2m-2} = \frac{5}{2} \Rightarrow 2m^2-2m+8 = 10m-10$

$2m^2-12m+18 = 0 \Rightarrow (m-3)^2 = 0$ $m = 3$

$S_\Delta = \left|\frac{m^2-m+4}{2(m-1)}\right| \times 2 \times \frac{1}{2} = \frac{5}{2} \rightarrow \frac{m^2-m+4}{m-1} = \pm 5 \longrightarrow m = 3, -1$ $3 \times -1 = -3$

۱٫۲۵ — 8



$d \Rightarrow y = 2x-3$ $(2,-2)$

نقطه دلخواه $= \begin{vmatrix} 0 \\ -3 \end{vmatrix}$

$2 = \frac{x_{d'}+0}{2} \Rightarrow x_{d'} = 4$

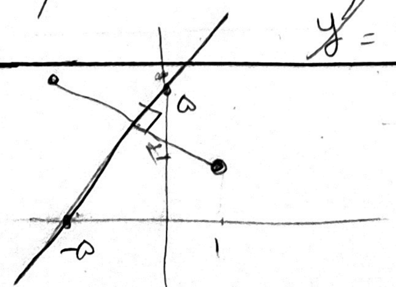
$-2 = \frac{y_{d'}-3}{2} \Rightarrow y_{d'} = -1$

$y = 2x + b \xrightarrow{(4,-1)} -1 = 8 + b \rightarrow y = 2x - 9$

۲ — 9

$A(1,2)$

$y = x+5$



$y = -x + b \xrightarrow{1,2} 2 = -1 + b$

$y = -x + 3$

$\begin{cases} -x+3 = y \\ x+5 = y \end{cases} \Rightarrow -2x-2 = 0$ $x = -1$, $y = 4$

$\frac{1+x'}{2} = -1 \Rightarrow x' = -3$

$\frac{2+y'}{2} = 4 \Rightarrow y' = 6$

$2b - a = 12 + 3 = 15$

۲ — 10