سارینا اسپنانی _ یازدهم تجربی _ شماره تکلیف (۱۴)

① $A\begin{vmatrix}۴\\-۶\end{vmatrix}$ و $B\begin{vmatrix}۲\\۸\end{vmatrix}$ ← معادله عمود منصف = ؟

نقطه وسط $= \left(\frac{۲+۴}{۲} , \frac{۸-۶}{۲}\right) = (۳ , ۱)$

$m_{AB} = \frac{-۶-۸}{۴-۲} = \frac{-۱۴}{۲} = -۷$

$+\frac{۱}{۷}(۳) + b = ۱$

$b = ۱ - \frac{۳}{۷} = \frac{۴}{۷}$

$y = \frac{۱}{۷}x + \frac{۴}{۷} \rightarrow \boxed{۷y = x + ۴}$

②

$BC = \sqrt{(-۴-(-۱))^۲ + (۷-۳)^۲} = \sqrt{(-۳)^۲ + ۴^۲} = \sqrt{۲۵} = ۵$

$m_{BC} = \frac{۷-۳}{-۴-(-۱)} = \frac{۴}{-۳}$

$-\frac{۴}{۳}(-۴) + b = ۷$

$b = ۷ - \frac{۱۶}{۳} = \frac{۵}{۳}$

$-\frac{۴}{۳}x + \frac{۵}{۳} = y$

$-۴x + ۵ = ۳y \rightarrow -۴x - ۳y = -۵$

AH طول $= \frac{|-۴(۳) - ۳(۱) + ۵|}{\sqrt{۴^۲ + ۳^۲}} = \frac{۱۰}{۵} = ۲$

$BC - AH = ۵ - ۲ = ۳$

③

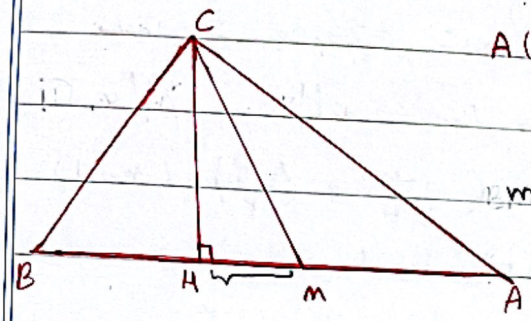
$(۳y - x - ۷ = ۰) \times ۲ \rightarrow ۶y - ۲x - ۱۴ = ۰$

$۴y = ax + ۲$

$\frac{a}{۴} = \frac{۱}{۲} \rightarrow \boxed{a = ۲} \rightarrow ۴y - ۲x - ۲ = ۰$

$\frac{|c - c'|}{\sqrt{a^۲ + b^۲}} = \frac{|-۱۲|}{\sqrt{۱۶ + ۴}} = \frac{\cancel{۱۲}^{۶}}{\cancel{۲}\sqrt{۵}} \times \frac{\sqrt{۵}}{\sqrt{۵}} = \frac{۶\sqrt{۵}}{۵} \xrightarrow{\div ۲} \frac{۳\sqrt{۵}}{۵}$

$S = \pi r^۲ = \frac{۹}{۵}\pi$



$A(2,3)$ $B(4,1)$ $C(-1,-2)$ ④

$M = \left(\frac{4+2}{2}, \frac{1+3}{2}\right) = (3,2)$

$m_{AB} = \frac{-2}{2} = -1$

$m_{CH} = 1$

$y_{AB} = -x + b \xrightarrow{2,3} -2+b=3$

$y_{CH} = x+b \xrightarrow{(-1,-2)} -1+b=-2 \rightarrow y_{CH} = x-1$ $\quad y=-x+5$

$-x+5 = x-1 \rightarrow 2x=6 \rightarrow x=\frac{6}{2}$ $\quad y=\frac{3}{2}$

$H = \left(\frac{6}{2}, \frac{3}{2}\right) \rightarrow MH = \sqrt{\left(\frac{-1}{2}\right)^2+\left(\frac{1}{2}\right)^2} = \frac{\sqrt{2}}{2}$

$(3m-2)x + (5-m)y - 6 = 0$ $\quad \frac{-3m+2}{5-m} \leftarrow m$ ⑤

$(m+1)x - (2m-4)y + 1 = 0$ $\quad \frac{+m+1}{2m-4} \leftarrow m$

$(-m-1)(-3m+2) = (2m-4)(5-m)$

$3m^2 \overbrace{-2m+3m}^{+m} - 2 = 10m - 2m^2 - 20 + 4m$

$5m^2 - 13m + 18 = 0$

$\Delta < 0$ این دو خط برهم عمود نیستند زیرا

$\begin{cases} AC: y = 2x-1 \\ BC: y = 4-x \end{cases} \rightarrow 2x-1 = 4-x$ $\quad C:\left(\frac{5}{3}, \frac{6}{3}\right)$ ⑥

$3x = 5 \rightarrow \boxed{x = \frac{5}{3}}$ $\quad \boxed{y = 4 - \frac{5}{3} = \frac{6}{3}}$

$\begin{cases} AB: y = \frac{3-x}{2} \\ BC: y = 4-x \end{cases} \rightarrow 4-x = \frac{3-x}{2} \rightarrow 8-2x = 3-x$

$B:(5,-1)$ $\quad \boxed{x=5}$ $\quad \boxed{y=-1}$

Subó

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

$$5 = 5x \rightarrow \boxed{x = 1}$$

$A: (1, 1)$

وسط $\rightarrow \left(\frac{10}{3}, \frac{2}{3}\right)$

$$AM = \frac{\sqrt{50}}{3} \qquad AH = \sqrt{2}$$

$$\frac{AM}{AH} = \frac{5}{3}$$

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(۷)

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

$$d = \frac{|ax_0 + by_0 + c|}{\sqrt{a^2 + b^2}}$$

$$\frac{\left|\left(\frac{1}{2} \times 0\right) + 1(0) - b\right|}{\sqrt{1 + \frac{1}{4}}} = \sqrt{20} \longrightarrow \frac{2|b|}{\sqrt{5}} = 4\sqrt{5}$$

$$\boxed{|b| = 5}$$

$(0, y_A) \quad (x_B, 0)$

$y_A = b \qquad \hookrightarrow -\frac{1}{2}x_B = -b \rightarrow x_B = 2b$

$$AB = \sqrt{a^2 + b^2} = \sqrt{100 + 25} = 5\sqrt{5}$$

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(۸)

$$\begin{cases} my - 4x = 2m \longrightarrow y = \frac{4}{m}x + 2 \\ y + mx = x + 2 \longrightarrow y = (1 - m)x + 2 \end{cases}$$

عرض از مبدا یکسان

$$\begin{cases} y = 0 \\ y = (1 - m)x + 2 \end{cases} \longrightarrow x = \frac{2}{m - 1}, \; y = 0 \rightarrow B\left(\frac{2}{m-1}, 0\right)$$

$\begin{cases} y=0 \\ y=\frac{4}{m}x+2 \end{cases} \rightarrow xB=\frac{-m}{2}, 0=y \rightarrow C\left(\frac{-m}{2},0\right)$

$S=\frac{\text{قاعدة} \times \text{ارتفاع}}{2}=\frac{5}{2} \rightarrow \text{ارتفاع}=\frac{5}{2}=BC=\sqrt{\left(\frac{2}{m-1}+\frac{m}{2}\right)^2}$

$\frac{m^2-m+4}{2(m-1)}=\frac{\pm 5}{2} \Rightarrow m^2-m+4=5m-5$

$m^2-6m+9=0 \rightarrow (m-3)^2=0$

$\boxed{m=3}$

$m^2-m+4=-5m+5$

$m^2+4m-1=0 \xrightarrow{\text{بالتجربة}} m=-1$

$-1\times 3=\boxed{-3}$

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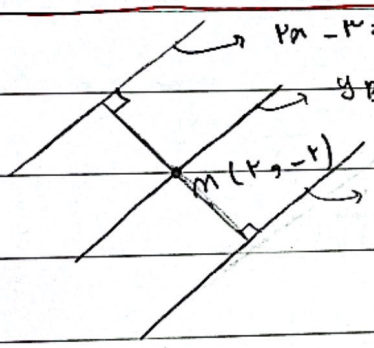
(9)



$y=2x-3 \quad m(2,-2)$

$4+b=-2 \rightarrow \boxed{b=-9}$

$y_B=2x-4$

$\frac{b-3}{2}=-4 \rightarrow b=-9$

$\boxed{y=2x-9}$

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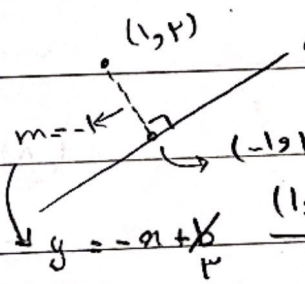
(10)



$\begin{cases} y=x+5 \\ y=-x+3 \end{cases} \rightarrow x+5=-x+3$

$2x=-2$

$x=-1$

$y=4$

$\frac{a+1}{2}=-1 \rightarrow \boxed{a=-3}$

$\frac{b+2}{2}=4 \rightarrow \boxed{b=6}$

$2b-a=12-(-3)=\boxed{15}$