یازدهم تجربی A نگار معصومی ۲۰ تکلیف شماره ۱۷

(۱)

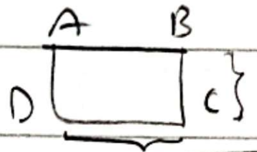
$A\left|\begin{matrix}-۲\\ k\end{matrix}\right.$ $B\left|\begin{matrix}۴\\ m\end{matrix}\right.$

$m=\frac{-۱}{۲}=\frac{\Delta y}{\Delta x}=\frac{k-m}{-۶}=\frac{-۱}{۲}\longrightarrow k-m=۳$ (۳)

$AB=\sqrt{\Delta y^۲+\Delta x^۲}=\sqrt{۳^۲+۶^۲}=\sqrt{۳۶+۹}=\sqrt{۴۵}$

$\sqrt{۴۵}\times\sqrt{۴۵}=\boxed{۴۵}$ مساحت مربع

$A\left|\begin{matrix}-۱\\ ۴\end{matrix}\right.$ $B\left|\begin{matrix}۳\\ ۱\end{matrix}\right.$ $C\left|\begin{matrix}x\\ y\end{matrix}\right.$ $D\left|\begin{matrix}-۱-x\\ y+۳\end{matrix}\right.$ (۲) (۲)



$۲\times۵+۲\times\frac{۵}{۲}=$ محیط

جواب $۱۰+۵=\boxed{۱۵}$

$AB=\sqrt{(۴-۱)^۲+(-۱-۳)^۲}=\sqrt{۳^۲+۴^۲}=۵$ *

$x_A+x_C=x_B+x_D$

$-۱+x=۳-۱-x\longrightarrow ۲x=۳\longrightarrow \boxed{x=\frac{۳}{۲}}$

$m_{AB}=\frac{-۳}{۴}\longrightarrow m_{BC}=\frac{۴}{۳}$

$m_{BC}=\frac{۴}{۳}=\frac{y-۱}{\frac{-۳}{۲}}=\frac{۲y-۲}{-۳}=\frac{۴}{۳}$

$۶y-۶=-۱۲\longrightarrow ۶y=-۶\longrightarrow \boxed{y=-۱}$

$B\left|\begin{matrix}۳\\ ۱\end{matrix}\right.$ $C\left|\begin{matrix}\frac{۳}{۲}\\ -۱\end{matrix}\right.\longrightarrow BC=\sqrt{۲^۲+\frac{۳}{۲}^۲}=\sqrt{۴+\frac{۹}{۴}}$

$\sqrt{\frac{۲۵}{۴}}=\frac{۵}{۲}$ *

۳) $2mx + (m^2-1)y = 3$

$y = \frac{3 - 2mx}{m^2-1} = \frac{-2mx}{m^2-1} + \frac{3}{m^2-1}$

$\tan 60 = \sqrt{3}$

شیب $\frac{-2m}{m^2-1} = \sqrt{3} \rightarrow \sqrt{3}m^2 - \sqrt{3} = -2m$

$\sqrt{3}m^2 + 2m - \sqrt{3} = 0$

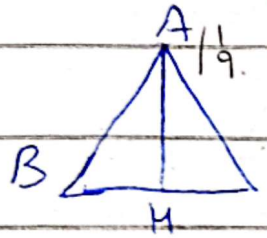
$m^2 + 2m - 3 = 0$

$(\frac{m+3}{\sqrt{3}})(\frac{m-1}{\sqrt{3}}) = 0$

$m = \frac{-3}{\sqrt{3}} \quad m' = \frac{1}{\sqrt{3}}$

اختلاف مقادیر $m = \frac{1}{\sqrt{3}} + \frac{3}{\sqrt{3}} = \frac{4}{\sqrt{3}} = \boxed{\frac{4\sqrt{3}}{3}}$

۴) $A|\frac{1}{9} \quad B|\frac{3}{3} \quad C|\frac{7}{11}$



$BC \rightarrow y - 11 = 2(x-7)$

$y = 2x - 14 + 11 \Rightarrow y = 2x - 3$

شیب $BC = \frac{8}{4} = 2$

شیب $AH = \frac{-1}{2}$

$A|\frac{1}{9}, y = 2x - 3 \xrightarrow{\text{فاصله از خط}} \frac{|y - 2x + 3|}{\sqrt{1 + 2^2}} = \frac{|9 - 2 + 3|}{\sqrt{5}} = \frac{10}{\sqrt{5}}$

$= \frac{10\sqrt{5}}{5} = \boxed{2\sqrt{5}}$

$AB: y+3x=7$

$AC: 4y-3x=17$

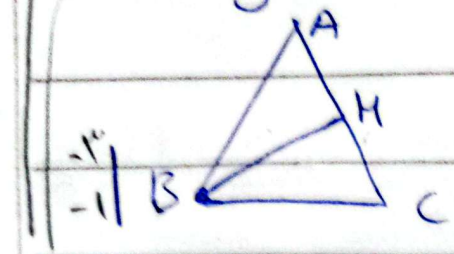
$BC: 2y-7x=-19$

$y+4=7 \rightarrow y=1$ (a)

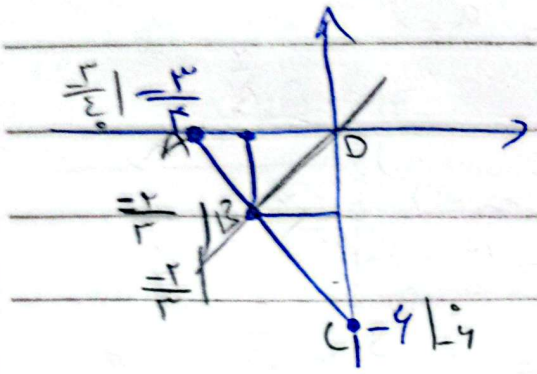
$\times 2 \quad y+2x=7 \rightarrow 2y+4x=14$ (b)

$2y-7x=-19$

$-11x=-33 \rightarrow x=3$



AC المستقيم $\rightarrow \dfrac{|4y-3x-17|}{\sqrt{3^2+4^2}} = \dfrac{|4-9-17|}{5} = \dfrac{22}{5} = 4,4$



(ج)

(د)

$m_{AC} = \dfrac{-4}{\frac{3}{2}} = \dfrac{-8}{3} = -2\dfrac{2}{3}$

$AC: y=-2\dfrac{2}{3}x-4$

$BD: y=x$

$-2\dfrac{2}{3}x-4=x$

$-3x-4=x$

$-4x=4$

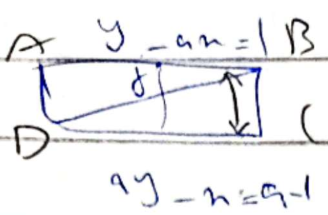
$x=-1$

$y=-1$

طول نصف قطر الدائرة $= \dfrac{2}{3}$

محيط الدائرة $= 2\pi r = \dfrac{4\sqrt{2}}{3}$

(۷)



$\parallel \frac{1}{2}$

(۴)

شیب‌ها برابر
$$\begin{cases} y = ax + 1 \\ ay = x + a - 1 \rightarrow y = \dfrac{x + a - 1}{a} = \dfrac{x}{a} + 1 - \dfrac{1}{a} \end{cases}$$

$$a = \frac{1}{a} \Rightarrow a^2 = 1 \rightarrow a = \pm 1$$

$$\parallel \frac{1}{2} \rightarrow 2 - a = 1 \rightarrow a = 1 \quad \text{ق ق} \checkmark$$
$$\rightarrow 2a - 1 = a - 1 \rightarrow a = 0 \quad \text{ق ق}$$

$$\begin{cases} y = x + 1 & \rightarrow y - x = 1 \\ y = x & \rightarrow y - x = 0 \end{cases}$$

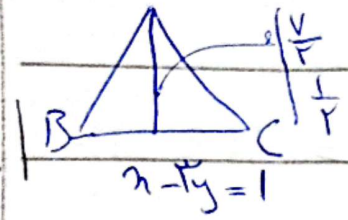
فاصله دو خط $= \dfrac{|1 - 0|}{\sqrt{2}} = \dfrac{1}{\sqrt{2}} = \dfrac{\sqrt{2}}{2}$ *

$$\sqrt{\left(\frac{\sqrt{2}}{2}\right)^2 + (CD)^2} = 5$$

$$\frac{2}{4} + CD^2 = 25$$ *

$$CD^2 = \frac{49}{2} \rightarrow CD = \frac{7}{\sqrt{2}} = \frac{7\sqrt{2}}{2}$$

مساحت مستطیل $= \dfrac{7\sqrt{2}}{2} \times \dfrac{\sqrt{2}}{2} = \boxed{\dfrac{7}{2}}$ جواب



$-3y = x - 1 \rightarrow y = \frac{x}{3} + \frac{1}{3}$

فاصله A از خط $= \frac{|-3y + x - 1|}{\sqrt{3^2 + 1}} = \frac{|4-1|}{\sqrt{10}} = \frac{3}{\sqrt{10}} = \frac{3\sqrt{10}}{10}$

$m_{AC} = -3 \qquad y - 0 = -3(x - 4)$

$y = -3x + 12$

$3x - 9y = 3$

$y + 3x = 12$

$-10y = -9 \rightarrow y = \frac{9}{10}$

$-3x = \frac{9}{10} - 12 \Rightarrow 3x = \frac{111}{10}$

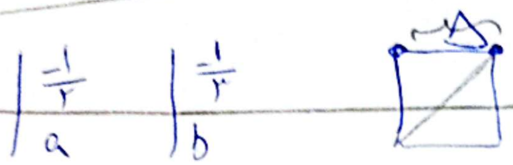
$x = \frac{111}{30}$

C $\left| \begin{matrix} \frac{111}{30} \\ \frac{9}{10} \end{matrix} \right.$

مساحت مثلث $= \frac{1}{2} \left| \begin{matrix} \frac{111}{30} & \frac{9}{10} & 1 \\ 4 & 0 & 1 \\ 1 & 0 & 1 \end{matrix} \right| =$

$\frac{1}{2} \left| \frac{9}{10} - \frac{36}{10} \right| = \frac{1}{2} \times \frac{27}{10} = \boxed{\frac{27}{20}}$

۹ (۲)



$$m=\sqrt{3}=\frac{b-a}{-\frac{1}{4}+\frac{1}{2}}=\frac{b-a}{\frac{1}{4}}=4(b-a)=\sqrt{3}$$

$$b-a=\frac{\sqrt{3}}{4}$$

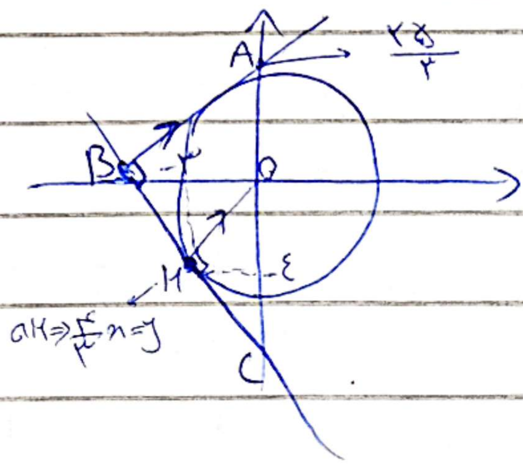
طول ضلع مربع $=\sqrt{\Delta y^2+\Delta x^2}=\sqrt{\left(\frac{\sqrt{3}}{4}\right)^2+\left(-\frac{1}{4}+\frac{1}{2}\right)^2}$

$$=\sqrt{\frac{3}{16}+\frac{1}{16}}=\sqrt{\frac{4}{16}}=\frac{2}{4}$$

قطر مربع $=\sqrt{\left(\frac{2}{4}\right)^2+\left(\frac{2}{4}\right)^2}=\sqrt{\frac{4}{16}+\frac{4}{16}}$

$$=\sqrt{\frac{8}{16}}=\frac{2\sqrt{2}}{4}=\boxed{\frac{\sqrt{2}}{2}}$$

۱۰ (۲)



طول OH $=\sqrt{3^2+4^2}=5$

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

$m_{BC}=\frac{-3}{4}$ AB: $y=\frac{+4}{3}x+A$

$m_{AB}=\frac{4}{3}$ فاصله O از AB $=5=\frac{|A|}{\sqrt{1^2+\left(\frac{4}{3}\right)^2}}=\frac{A}{\sqrt{1+\frac{16}{9}}}$

$$=\frac{A}{\sqrt{\frac{25}{9}}}=\frac{3A}{5}=5$$

$3A=25 \to A=\frac{25}{3}$

تاريخ: / /

موضوع:

$AB : y = \frac{-3}{4}x + \frac{25}{4}$

$BC : y + 4 = \frac{-3}{4}(x+4) \rightarrow y = \frac{-3}{4}x - \frac{9}{4} - 4$

$BC : y = \frac{-3}{4}x - \frac{25}{4}$

$L_{\text{عمودي}} = B \rightarrow \frac{-3}{4}x - \frac{25}{4} = \frac{4}{3}x + \frac{25}{3}$

$\frac{16+9}{12}x = \frac{-25}{4} - \frac{25}{3}$

$\frac{25}{12}x = \frac{-75 - 100}{12} = \frac{-175}{12}$

$x = \frac{-175}{25} = -7$

$y = \frac{-3}{4} \times -7 - \frac{25}{4} = \frac{+21}{4} - \frac{25}{4} = \frac{-4}{4} \rightarrow y = -1$

$B \begin{vmatrix} -7 \\ -1 \end{vmatrix}$ } طول × عرض = $-7 \times -1 = 7$

جواب سئله