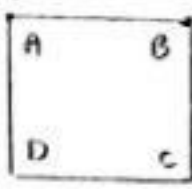


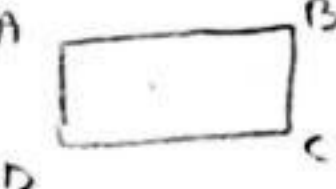
1. $S_{ABCD} = (AB)^2 \rightarrow \sqrt{(m-k)^2 + (4+2)^2} = \sqrt{9+24} = \sqrt{33} \Rightarrow S = 33$

$m_{AB} = -\frac{1}{4} = \frac{m-k}{4+2} \Rightarrow m-k = -2 \quad (*)$



2. $x_A + x_C = x_B + x_D \rightarrow -1 + x = 2 - 1 - x \rightarrow x = \frac{1}{2} \quad (*)$

$m_{AB} = \frac{-2}{4} = \frac{-1}{y-1} \Rightarrow 2y - 2 = -4 \Rightarrow y = -1$



$AB = \sqrt{14+9} = 5$
 $BC = \sqrt{9+2} = \frac{5}{2}$
 $\rightarrow P = x(5) + x(\frac{5}{2}) = 15$

3. $y = \frac{-2m}{m^2-1}x + \frac{2}{m^2-1} \quad \tan \theta = \sqrt{2} \Rightarrow \frac{2}{m^2-1} = \sqrt{2}$

$\frac{-2m}{m^2-1} = \sqrt{2} \rightarrow \sqrt{2}m^2 + 2m - \sqrt{2} = 0 \rightarrow \frac{\sqrt{2}}{1} = \frac{\sqrt{14}}{\sqrt{2}} = \frac{2}{\sqrt{2}}$

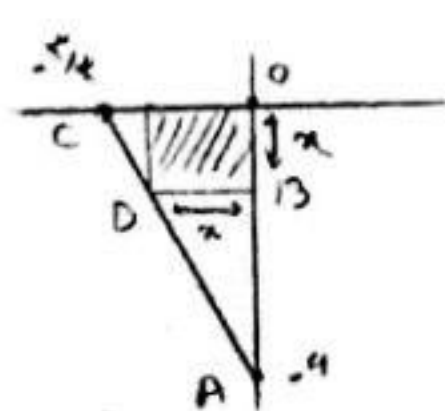
4. $m_{BC} = \frac{11-2}{4-2} = 2 \Rightarrow y-2 = 2(x-2) \Rightarrow y = 2x-2$

$AH = \frac{|2(1) - 2 - 2|}{\sqrt{2+1}} = \frac{2}{\sqrt{3}}$

5. $B \text{ س } \begin{cases} 2y - 7x = -19 \\ y + 2x = 4 \end{cases} \rightarrow \begin{cases} 2y - 7x = -19 \\ -2y - 4x = -8 \end{cases} \Rightarrow B(2, 1)$

$BH = \frac{|2(1) - 2(2) - 17|}{\sqrt{14+9}} = \frac{22}{5}$

$11x = 22 \Rightarrow x = 2, y = 1$



6. $\frac{4-x}{4} = \frac{x}{2} \Rightarrow x = \frac{4}{3}$

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

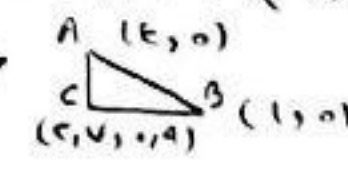
$y = ax + 1$ $\xrightarrow{\text{موازی است}}$ $a = \frac{1}{a} \Rightarrow a = \pm 1$ $\rightarrow a = 1 \checkmark \Rightarrow y - x = 1$
 $y = \frac{x}{a} + 1 - a$ $\rightarrow a = 1 \checkmark \Rightarrow y - x = 0$

$\rightarrow$ عرض: $\frac{|c'-c|}{\sqrt{a'^2+b'^2}} = \frac{r_r}{r} \rightarrow r_r = \frac{a}{x} \rightarrow x = \sqrt{r^2 - \frac{1}{4}} > \frac{\sqrt{r}}{2}$

$\Rightarrow S = \frac{r_r}{r} \times \frac{\sqrt{r}}{2} = \frac{\sqrt{r}}{4} = 2,5$

شیب قائم الزویه است: $x - 3y = 1 \rightarrow y = \frac{x}{3} - \frac{1}{3}$ / $AH = \frac{|1 - 3(0) - 1|}{\sqrt{1+9}} = \frac{2}{\sqrt{10}}$ $\xrightarrow{AC \perp BC}$ $m_{AC} = -\frac{3}{1}$

$y = 0 \Rightarrow -3(x-1) \rightarrow y = -3x + 3$ / C است: $-3x + 3 = \frac{1}{3}x - \frac{1}{3} \Rightarrow x = 2,4$ و $y = 0,9$

شیب درجه اول است $\rightarrow 0 = \frac{x}{3} - \frac{1}{3} \Rightarrow x = 1$ $\Rightarrow$ 

$S = \begin{vmatrix} 3 & 0,9 & 1 \\ 0 & 0,9 & 1 \\ 1 & 1 & 1 \end{vmatrix} \times \frac{1}{2} = 1,45$

$m = \sqrt{r} > \frac{a-b}{-1/r + 1/r} \Rightarrow a-b = \frac{-\sqrt{r}}{4}$ $\left\{ \begin{array}{l} \text{ضلع } x = \sqrt{r} \\ \text{قطر} = \frac{\sqrt{r}}{2} \end{array} \right.$

$AB = \sqrt{(\frac{\sqrt{r}}{4})^2 + (\frac{1}{4})^2} = \frac{1}{4}$

$m = \frac{-2-0}{-4-0} = \frac{1}{2} \Rightarrow L: y + 2 = \frac{1}{2}(x+4) \rightarrow x + 2y = -2$

خط عمود بر L و میانس بر دایره می باشد و مرکز دایره است $y = \frac{3}{4}x + c$ برابر شد

$r = \sqrt{14+9} = 5$

$\rightarrow \frac{|c|}{\sqrt{(\frac{3}{4})^2+1}} = \frac{r}{5} \rightarrow = 5 \Rightarrow c = \pm \frac{r}{5} \xrightarrow{\text{موازی است}} + \text{حالت} \rightarrow y = \frac{3}{4}x + \frac{r}{5}$

$\begin{cases} \frac{3}{4}x + \frac{r}{5} = y \\ x + 2y = -2 \end{cases} \xrightarrow{\text{حذف}} \begin{cases} x = -7 \\ y = 0 \end{cases} \rightarrow [-7 \times 1 = 7]$