نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۱۷ کلاس یازدهم ریاضی B

**۱** (۲)

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

$\Rightarrow$ شیب $=\frac{m-k}{4-(-2)}=-\frac{1}{2} \rightarrow m-k=-3$

$\rightarrow S \rightarrow (AB)^2 \rightarrow (4-(-2))^2+(m-k)^2$

$=36+9=\boxed{45}$ ✓

**۲** (۲)

$A(-1,4)$
$B(5,1)$
$C(a,y) \rightarrow AB=B-A=(5-(-1)),1-4)=(6,-3)$
$D(-1-a,y+3)$ $BC=(a-5,y-1) \xrightarrow{\text{اضلاع متوازی}} (6,-3)\times(a-5,y-1)=0$
$\Rightarrow 6(a-5)-3(y-1)=0$
$A+C=B+D \rightarrow (-1,4)+(a,y)=(5,1)+(-1-a,y+3) \rightarrow a=\frac{5}{2}, y=-1$

$\rightarrow AB=\sqrt{36}=6 \rightarrow BC=\sqrt{\frac{36}{4}}=\boxed{\frac{6}{2}}$

محیط $=2(AB+BC)=2(6+\frac{6}{2})=\boxed{18}$ ✓

**۳** (۲)

$3ma+(m^2-1)y=4 \Rightarrow m=-\frac{3m}{m^2-1}$

$m=\tan 60^\circ=\sqrt{3} \Rightarrow -\frac{3m}{m^2-1}=\sqrt{3} \Rightarrow \sqrt{3}m^2+3m-\sqrt{3}=0$

$A=4+12=16 \Rightarrow m<\frac{3}{2\sqrt{3}}, \frac{-5}{2\sqrt{3}} \rightarrow \left|\frac{3}{2\sqrt{3}}-\frac{-5}{2\sqrt{3}}\right|=\left|\frac{8}{2\sqrt{3}}\right|=\frac{4}{\sqrt{3}}$

$\Rightarrow \frac{4}{\sqrt{3}}\times\frac{\sqrt{3}}{\sqrt{3}}=\frac{4\sqrt{3}}{3}$ ✓

**۴** (۲)

$A(1,9)$
$B(3,3)$
$C(7,11)$

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

$BC: y-3=2(x-3) \rightarrow 2x-y-3=0$

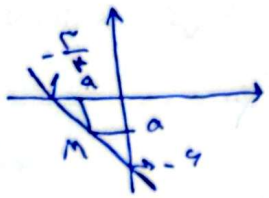
$A(1,9) \rightarrow AH=\frac{|2(1)-9-3|}{\sqrt{2^2+(-1)^2}}=\frac{10}{\sqrt{5}}\times\frac{\sqrt{5}}{\sqrt{5}}=\boxed{2\sqrt{5}}$ ✓

**۵** (۲)

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

$\Rightarrow B=\begin{cases} AB: (y+2x=7)\times 2 \\ BC: 2y-7x=-19 \end{cases} \rightarrow x=3, y=1$

$BH=AC \Rightarrow \frac{|4-9-17|}{\sqrt{16+9}}=\frac{22}{5}=4,4$ ✓



$\frac{x}{-\frac{2}{3}a} + \frac{y}{-a} = 1 \rightarrow \frac{y}{a} = \frac{-6x}{2a} - 1 \xrightarrow{\times a} y = -3x - a$

$ay = -3ax - a \rightarrow 9a = -a \rightarrow a = -\frac{1}{9}$

$S_{\triangle OAB} = \frac{2}{3}\sqrt{2} \times \frac{\sqrt{2}}{\sqrt{2}} = \boxed{\frac{4}{3\sqrt{2}}}$ ✓

(۲) ۶

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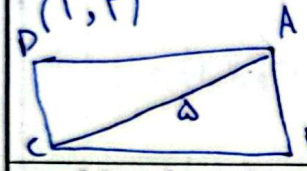
$y = ax + 1$

$ay - x = a - 1$

$\Delta = 0$

$(1, 2)$




$\begin{cases} y - ax = 1 \rightarrow m = \frac{a}{1} = a \\ ay - x = a - 1 \rightarrow m' = -\frac{-1}{a} = \frac{1}{a} \end{cases} \rightarrow a = \frac{1}{a} \Rightarrow a = \pm 1$

If $a = 1 < \begin{matrix} y - x = 1 \\ y - x > 0 \end{matrix} \Rightarrow \begin{cases} x - y + 1 > 0 \\ x - y < 0 \end{cases} \Rightarrow d = \frac{|1 - 0|}{\sqrt{2}} = \frac{1}{\sqrt{2}}$

If $a = -1 < \begin{matrix} y + x = 1 \\ y + x = -1 \end{matrix}$ $x^2 + \frac{1}{2} = \delta^2 \rightarrow x^2 + \frac{1}{4} = 2\delta$

$\Rightarrow x^2 = \frac{49}{4} \rightarrow x = \frac{7}{2} \Rightarrow S = \frac{7}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = \boxed{\frac{7}{2}}$ ✓

(۲) ۸

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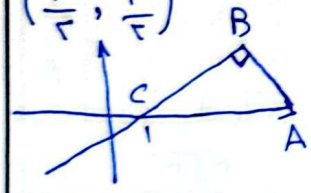
$A(4, 0)$

$x - 2y = 1$

$(\frac{7}{2}, \frac{1}{2})$




$AB = \frac{|4 - 0 - 1|}{\sqrt{1 + 4}} = \frac{3}{\sqrt{10}}$

$\tan C = m_{BC} = \frac{1}{3}$

$\tan C = \frac{AB}{BC} = \frac{1}{3} \rightarrow BC = \frac{9}{\sqrt{10}} \rightarrow S_{ABC} =$

$\frac{1}{2} \times \frac{3}{\sqrt{10}} \times \frac{9}{\sqrt{10}} = \frac{12,5}{10} = 1,25$ ✓

(۲) ۹

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$(-\frac{1}{2}, a), (-\frac{1}{3}, b)$

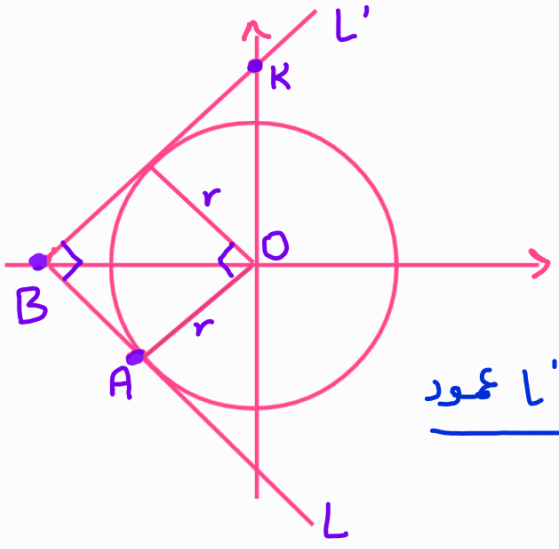
$m_{AB} = \sqrt{2} \rightarrow m = \frac{a - b}{-\frac{1}{2} + \frac{1}{3}} = \sqrt{2} \rightarrow a - b = -\frac{\sqrt{2}}{6}$

$|AB| = \sqrt{(a-b)^2 + (-\frac{1}{2} + \frac{1}{3})^2} = \sqrt{\frac{2}{36} + \frac{1}{36}} = \frac{2}{6} = \frac{1}{3}$

مساحت $= \sqrt{2}\,|AB| = \sqrt{2} \times \frac{1}{3} = \boxed{\frac{\sqrt{2}}{3}}$ ✓

(۲) ۱۰

۱۱۵




$$m_{OA} = \frac{۴}{۳} \xrightarrow{\text{عمود بر}\ L} m_L = -\frac{۳}{۴}$$

$$L: y+۴ = -\frac{۳}{۴}(x+۳) \to y = \frac{-۳}{۴}x - \frac{۲۵}{۴}$$

$$\xrightarrow{L \text{ و } L' \text{ عمود}} m_{L'} = \frac{۴}{۳} \to L': y - \frac{۴}{۳}x - K = ۰$$

$$ol' = OA = \sqrt{۹+۱۶} = ۵ \quad \text{شعاع}$$

$$ol' = \frac{|۱-K|}{\sqrt{۱+\frac{۱۶}{۹}}} = ۵ \to K = \frac{۲۵}{۳} \to L': y = \frac{۴}{۳}x + \frac{۲۵}{۳}$$

مختصات B محل تقاطع L و L' $\Rightarrow (-۷, -۱) \xrightarrow{\text{حاصل ضرب}} \boxed{۷}$