نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..۱۷.. کلاس .....

۱

$m_{AB} = -\frac{1}{2} = \frac{m-k}{k-(-2)} = \frac{m-k}{4} \rightarrow m-k = -2$

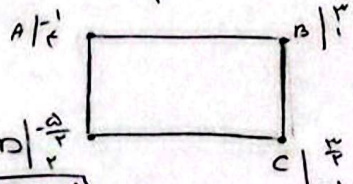
طول پاره‌خط $= AB = \sqrt{(m-k)^2 + (4-(-2))^2} = \sqrt{(-2)^2 + 6^2} = \sqrt{40}$

$S = (AB)^2 = (\sqrt{40})^2 = \boxed{40}$

۲

$x_A + x_C = x_B + x_D \rightarrow -1 + m = 3 + (-1-m) \Rightarrow 2m = 3 \rightarrow m = \frac{3}{2}$

$m_{AB} \times m_{AD} = -1 \rightarrow \frac{-3}{2} \times \frac{1-y}{3} = -1 \rightarrow y = -1$



$AB = CD = \sqrt{(3-(-1))^2 + (4-1)^2} = 5$

$BD = AC = \sqrt{(\frac{3}{2})^2 + (2)^2} = \frac{5}{2}$

$P = 2 \times (5 + \frac{5}{2}) \rightarrow \boxed{P = 15}$

۳

$2mx + (m^2-1)y = 2 \rightarrow y = \frac{2m}{-m^2+1}x + \frac{2}{m^2-1}$

$\alpha = \tan(\alpha) = \sqrt{3} \rightarrow \frac{2m}{1-m^2} = \sqrt{3} \rightarrow \sqrt{3}m^2 + 2m - \sqrt{3} = 0 \rightarrow (m + \frac{3}{\sqrt{3}})(m - \frac{1}{\sqrt{3}}) = 0$

$m_1 = \frac{-3}{\sqrt{3}} = -\sqrt{3}$

$m_2 = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

$|m_1 - m_2| = |\frac{-3}{\sqrt{3}} - \frac{1}{\sqrt{3}}| = \boxed{\frac{4}{\sqrt{3}} = \frac{4\sqrt{3}}{3}}$

۴

$A(1,9) \quad B(3,3) \quad C(5,11)$

$m_{BC} = \frac{11-3}{5-3} = \frac{8}{4} = 2 \rightarrow y = 2m - 3 \rightarrow y - 2m + 3 = 0$

$AH = \frac{|9 - 2 + 3|}{\sqrt{1+4}} = \frac{10}{\sqrt{5}} = \boxed{2\sqrt{5}}$

۵

$AB: y + 2m = 5 \rightarrow y = -2m + 5$

$BC: 2y - 5m = -19 \rightarrow y = \frac{5}{2}m - \frac{19}{2}$

$AC: 4y - 3m = 17 \rightarrow y = \frac{3}{4}m + \frac{17}{4}$

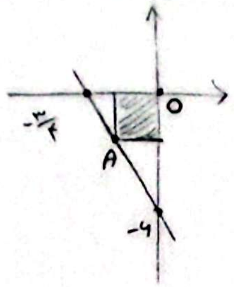
$B: -2m + 5 = \frac{5}{2}m - \frac{19}{2} \rightarrow \frac{11}{2}m = \frac{33}{2} \rightarrow m = 3$

$y = 1$

$B(3,1)$

$\overline{BH} = \frac{|-4 + 3 \times 3 + 17|}{\sqrt{16+9}} = \frac{22}{5} = \boxed{4,4}$

$(0,-6)$, $(-\frac{3}{4},0)$



$m = \frac{0-(-6)}{-\frac{3}{4}-0} = -8 \rightarrow y = -8x - 6$

$A(x,x) \rightarrow y = x \rightarrow x = -8x - 6 \rightarrow 9x = -6 \rightarrow x = \frac{-2}{3}$ ۶

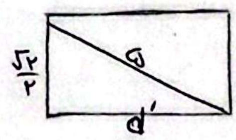
$\Rightarrow A(\frac{-2}{3}, \frac{-2}{3})$

$\overline{OA} = \sqrt{\frac{4}{9}+\frac{4}{9}} = \frac{2}{3}\sqrt{2}$ = قطر مربع هاشور خورده

$y - ax = 1 \rightarrow y = ax + 1$

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

دو ضلع مقابل موازی اند $\rightarrow a = \frac{1}{a} \rightarrow a = \pm 1$



$a=1$: $y = x+1$, $y = x$ $\rightarrow d = \frac{|1-0|}{\sqrt{2}} = \frac{1}{\sqrt{2}}$

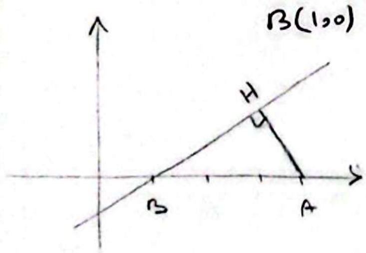
$(d')^2 = 25 - \frac{1}{2} = \frac{49}{2}$ ۷

$d' = \frac{7}{\sqrt{2}}$

$a=-1$: $y = -x+1$, $y = -x+2$ غ ق ق چون نقطه $(1,2)$ در هیچکدام صدق نمی کند

$S = dd' = \frac{1}{\sqrt{2}} \times \frac{7}{\sqrt{2}} = \frac{7}{2} = 3.5$

$A(4,0)$
$B(1,0)$



$x - 3y = 1 \rightarrow x - 3y - 1 = 0$

$AH = d = \frac{|4-0-1|}{\sqrt{1+9}} = \frac{3}{\sqrt{10}}$, $BH^2 = 9 - \frac{9}{10} = \frac{81}{10} \rightarrow BH = \frac{9}{\sqrt{10}}$ ۸

$BA = 3$

$S = \frac{1}{2} \times \frac{3}{\sqrt{10}} \times \frac{9}{\sqrt{10}} = 1.35$

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

ضلع مربع $= d = \sqrt{(b-a)^2 + (\frac{1}{4})^2} = \sqrt{\frac{3}{16}+\frac{1}{16}} = \frac{2}{4} = \frac{1}{2}$ ۹

قطر مربع $= \sqrt{2} \times$ ضلع مربع $= \frac{\sqrt{2}}{2}$

فاصله نقطه تماس از مبدا = شعاع دایره $= \sqrt{3^2 + 4^2} = 5$

$m_L = \frac{-1}{\frac{0+4}{0+3}} = \frac{-3}{4} \rightarrow L: y = \frac{-3}{4}x - \frac{25}{4} \rightarrow m_{L'} = \frac{4}{3}$

$L': y = \frac{4}{3}x + \frac{25}{3}$ ۱۰

$\Rightarrow 12y + 9x = -75$, $12y - 16x = 100$ $\} \; 25x = -175 \rightarrow x = -7$, $y = -1$ $\rightarrow xy = 7$