Subject :

Date :

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لیانا ابراهیمی – تکلیف شماره ۱۶ ، یازدهم (دفتر)

۱- (۲)

$M \left| \begin{array}{l} \frac{4+2}{2} = 3 \\ \frac{8-6}{2} = 1 \end{array} \right.$

$m_{AB} = \frac{8-(-6)}{2-4} = -7 \qquad m' = +\frac{1}{7}$

$y - 1 = \frac{1}{7}(x-3) \rightarrow y = \frac{1}{7}x - \frac{3}{7} + \frac{7}{7}$

$\rightarrow y = \frac{1}{7}x + \frac{4}{7} \xrightarrow{\times 7} \boxed{7y = x + 4}$

۲- (۲)

$BC = \sqrt{(\Delta y)^2 + (\Delta x)^2} = \sqrt{(-3)^2 + (4)^2} = \sqrt{25} = 5$

$m_{BC} = \frac{4}{-3} \Rightarrow y - 3 = -\frac{4}{3}(x+1) \rightarrow y - 3 = -\frac{4}{3}x - \frac{4}{3} \rightarrow y = -\frac{4}{3}x + \frac{5}{3}$

$\rightarrow y + \frac{4}{3}x - \frac{5}{3} = 0 \qquad AH = \frac{|1 + 4 - \frac{5}{3}|}{\sqrt{(1)^2 + (\frac{4}{3})^2}} = \frac{\frac{10}{3}}{\frac{5}{3}} = 2 \qquad 5 - 2 = \boxed{3}$

۳- (۲)

$2y - x - 7 = 0$

$4y - 2x - 2 = 0$

$\frac{1}{2} = \frac{a}{4} \rightarrow a = 2$

$4y - 2x - 14 = 0$

$4y - 2x - 2 = 0$

قطر دایره $= \frac{12}{\sqrt{16+4}} = \frac{12}{2\sqrt{5}} = \frac{6}{\sqrt{5}}$ شعاع دایره $= \frac{3}{\sqrt{5}}$

$S = \frac{3}{\sqrt{5}} \times \frac{3}{\sqrt{5}} \times \pi = \boxed{\frac{9}{5}\pi} \xrightarrow{\pi = 3} \boxed{\frac{27}{5}}$

۴- (۲)

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

فاصله نقطه M از H = فاصله نقطه M از خط CH

$y + 3 = 1(x+1) \rightarrow y + 3 = x + 1 \rightarrow y = x - 2 \rightarrow y - x + 2 = 0$

$MH = \frac{|2 - 3 + 2|}{\sqrt{2}} = \frac{1}{\sqrt{2}} \Rightarrow \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \boxed{\frac{\sqrt{2}}{2}}$

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۵_ (۳)

$m \times m' = -1 \qquad \frac{-(3m-2)}{5-m} \times \frac{-(m+1)}{-2m+4} = -1 \Rightarrow \frac{-3m+2}{5-m} = \frac{-2m+4}{m+1}$

$-3m^2 - 3m + 2m + 2 = -10m + 20 + 2m^2 - 4m \rightarrow -5m^2 + 14m - 18 = 0$

$5m^2 - 14m + 18 = 0 \rightarrow m^2 - 14m + 90 = 0 \rightarrow \Delta = 196 - 360 \rightarrow$ $\boxed{\Delta < 0 \leftarrow \text{هیچ مقدار } m}$

۶_ (۲)

$A\left|\begin{matrix}1\\1\end{matrix}\right. \quad B\left|\begin{matrix}5\\-1\end{matrix}\right. \quad C\left|\begin{matrix}\frac{5}{3}\\ \frac{7}{3}\end{matrix}\right.$

$2y = 3 - x$
$y = 2x - 1$
$3 - x = 4x - 2 \Rightarrow x = 1,\ y = 1$

$y = 2x - 1$
$y = 4 - x$
$2x - 1 = 4 - x \rightarrow x = \frac{5}{3},\ y = \frac{7}{3}$

$M = \left(\frac{10}{3}, \frac{2}{3}\right)$

$2y = 3 - x$
$2y = 8 - 2x$
$3 - x = 8 - 2x \rightarrow x = 5,\ y = -1$

$m_{BC} = \frac{\frac{7}{3} + 1}{\frac{5}{3} - 5} = \frac{\frac{10}{3}}{-\frac{10}{3}} = -1$

$y + 1 = -1(x - 5) \rightarrow y = -x + 4$

$AH = \frac{|1 + 1 - 4|}{\sqrt{2}} = \frac{2}{\sqrt{2}}$

$AM = \sqrt{\left(\frac{7}{3}\right)^2 + \left(-\frac{1}{3}\right)^2} = \frac{\sqrt{50}}{3}$

$\frac{AM}{AH} = \frac{\frac{\sqrt{50}}{3}}{\frac{2}{\sqrt{2}}} = \frac{\sqrt{100}}{6} = \frac{10}{6} = \boxed{\frac{5}{3}}$

۷_ (۲)

$\frac{x}{A} + \frac{y}{B} = 1 \rightarrow \frac{xB + yA}{AB} = 1 \rightarrow AB = xB + yA \qquad \frac{B}{A} = \frac{1}{2} \rightarrow A = 2B$

$\frac{|AB|}{\sqrt{A^2 + B^2}} = \sqrt{20} \rightarrow \frac{2B^2}{\sqrt{5B^2}} = \sqrt{20} \rightarrow \frac{2B}{\sqrt{5}} = \sqrt{20} \rightarrow 2B = \sqrt{100} \rightarrow B = 5$

$A = 10$

$\sqrt{25 + 100} = \boxed{5\sqrt{5}}$

۸_ (۲)

$my - 4x = 2m \rightarrow y = \frac{4}{m}x + 2 \qquad P = -3$

$y + mx = x + 2 \rightarrow y = (1 - x)x + 2$

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

$y = \frac{4}{m}x + 2 = 0 \rightarrow x = -\frac{m}{2} = B\left|-\frac{m}{2}\right.$

$y = (1 - m)x + 2 = 0 \rightarrow x = -\frac{2}{1-m} = C\left|\frac{2}{m-1}\right.$

$S = \frac{1}{2}\left|\frac{4}{2m-1} - (-x)\right| = \frac{5}{2}$

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

$m^2 + 4m - 1 = 0 \rightarrow m = \frac{-4 \pm 2\sqrt{5}}{2} \rightarrow \boxed{-2 \pm \sqrt{5}}$

$\left|\frac{4 + m(m-1)}{m-1}\right| = 5 \qquad \frac{4 + m(m-1)}{m-1} = 5 \Rightarrow 5m - 5 = 4 + m^2 - m$

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

$P = (-2 + \sqrt{5})(-2 - \sqrt{5})(3) = (4 - 5)(3) = \boxed{-3}$

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$\frac{\alpha+0}{2} = 2 \rightarrow \alpha = 4$

$\frac{\beta-2}{2} = -2 \rightarrow \beta = -1$

$x=0 \rightarrow y=-2$

$y = 2x + 2 = 0 \rightarrow x = \frac{-2}{1} = -2$

$y+1 = 2(x-2) \Rightarrow y+1 = 2x-4$

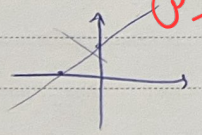
$y = 2x - 5$ (۲) ۹

$m = \frac{1}{1} = 1 \rightarrow m' = -1$

$y-2 = -(x-1) \rightarrow y-2 = -x+1 \rightarrow y = -x+3$

$-x+3 = x+5 \rightarrow -2x = 2 \rightarrow x = -1, y = 4$

(۲)



$\frac{2+b}{2} = 4 \rightarrow b = 6$ $\quad \frac{1+a}{2} = -1 \rightarrow a = -3$

$2b - a = 12 + 3 = 15$