آرشا یزدی یازدهم ریاضی A تکلیف شماره ۱۶

۱- $M(\frac{4+2}{2}, \frac{8-6}{2}) = (3,1)$ $\quad m_{AB} = \frac{8+6}{2-4} = \frac{14}{-2} = -7 \rightarrow m' = \frac{1}{7}$

$y-1 = \frac{1}{7}(x-3) \rightarrow y = \frac{1}{7}x + \frac{4}{7}$

۲- $BC = \sqrt{(7-3)^2+(-4+1)^2} = \sqrt{9+16} = \sqrt{25} = 5$

$m_{BC} = \frac{7-3}{-4+1} = \frac{4}{-3} \rightarrow y-3 = -\frac{4}{3}(x+1) \rightarrow y = -\frac{4}{3}x + \frac{5}{3} \rightarrow 3y+4x=5 \quad , A(3,1)$

$d = \frac{|12+3-5|}{\sqrt{16+9}} = \frac{10}{5} = 2 = AH \qquad BC-AH = 5-2 = 3$

۳- $2y-x=7 \rightarrow m = \frac{1}{2} \rightarrow \frac{a}{4} = \frac{1}{2} \rightarrow a=2 \rightarrow 4y = 2x+2 \rightarrow 2y-x=1 \quad , 2y-x=7$

$d = \frac{|7-1|}{\sqrt{1+4}} = \frac{6}{\sqrt{5}} = 2r \rightarrow r = \frac{3}{\sqrt{5}} \qquad S = \pi r^2 \rightarrow \pi(\frac{3}{\sqrt{5}})^2 = \frac{9}{5}\pi$

۴- $M(\frac{2+4}{2}, \frac{3+1}{2}) = (3,2) \qquad CM = \sqrt{(-2-3)^2+(-1-3)^2} = \sqrt{25+16} = \sqrt{41}$

$m_{AB} = \frac{3-1}{2-4} = \frac{2}{-2} = -1 \quad y-1 = -1(x-4) \rightarrow y+x=5 \rightarrow d = \frac{|-1-3-5|}{\sqrt{1+1}} = \frac{9}{\sqrt{2}} = CH$

$(CM)^2 = (CH)^2 + (HM)^2 \rightarrow 41 = \frac{81}{2} + (HM)^2 \rightarrow HM^2 = \frac{1}{2} \rightarrow HM = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

۵- $m \cdot m' = -1 \rightarrow \frac{-2m+2}{5-m} \times \frac{-m-1}{-2m+4} = -1 \rightarrow \frac{-2m+2}{5-m} = \frac{2m-4}{-m-1}$

$2m^2+2m-2m-2 = 10m-2m^2-20+4m \rightarrow 5m^2-12m+18=0 \rightarrow \Delta<0$

به ازای هیچ عددی دو خط عمود نخواهند بود

۶- $-x+2 = 4x-3 \rightarrow 5x=5 \rightarrow x=1 , y=1 \rightarrow A(1,1)$

$-2y+3 = -y+4 \rightarrow y=-1 , x=5 \rightarrow B(5,-1) \qquad M(\frac{5+\frac{5}{3}}{2}, \frac{-1+\frac{7}{3}}{2}) = (\frac{10}{3}, \frac{2}{3})$

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

$\rightarrow AM = \sqrt{(\frac{7}{3})^2+(-\frac{1}{3})^2} = \frac{5\sqrt{2}}{3} \qquad AH = \frac{|1+1-4|}{\sqrt{2}} = \frac{2}{\sqrt{2}} = \sqrt{2}$

$\frac{AM}{AH} = \frac{\frac{5\sqrt{2}}{3}}{\sqrt{2}} = \frac{5}{3}$

s.a.m

۷- $y = -\frac{1}{2}x + b \longrightarrow A(2b, 0) \quad B(0, b)$

$AB = \sqrt{(2b-0)^2 + (0-b)^2} = \sqrt{5b^2}$ $\qquad x + 2y - 2b = 0 \rightarrow \frac{|0+0-2b|}{\sqrt{1+4}} = \frac{2|b|}{\sqrt{5}} = 2\sqrt{5} \rightarrow |b| = 5$

$\Rightarrow \sqrt{5b^2} = \sqrt{5} \cdot 5 = 5\sqrt{5} = AB$

۸- $xy - 4x = 2m \xrightarrow{y=0} x = -\frac{m}{2} \rightarrow -\frac{5}{2} \rightarrow m = 5$

$y + mx = x + 2 \xrightarrow{y=0} x = \frac{-2}{1-m} \rightarrow -\frac{5}{2} \rightarrow m = \frac{9}{5}$

$-5 \times \frac{9}{5} = -9$

۹- $m = 2 \qquad y = 2x - 2 \xrightarrow{x=0} (0, -2)$ $\qquad 2 = \frac{0+x'}{2} \rightarrow x' = 4$

$-2 = \frac{-2+y'}{2} \rightarrow y' = -1 \rightarrow A'(4, -1)$

$y + 1 = 2(x - 4) \rightarrow y = 2x - 9$

۱۰- $m = 1 \rightarrow m' = -1 \qquad y - 2 = -1(x - 1) \rightarrow y = -x + 3 \qquad -x + 3 = x + 5 \rightarrow 2x = -2 \rightarrow x = -1$

$M(-1, 4) \qquad \frac{1+x'}{2} = -1 \rightarrow x' = -3 \qquad \frac{2+y'}{2} = 4 \rightarrow y' = 6 \qquad A'(-3, 6)$

$a = -3 \quad b = 6 \qquad 2b - a = 2(6) - (-3) = 15$