باسمه تعالی

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پاسخنامه تکلیف شماره: ۱۷ $\sqrt{(\Delta x)^2+(\Delta y)^2}$

کلاس یازدهم: A

۱-

$A(-2, k)$
$B(4, m)$

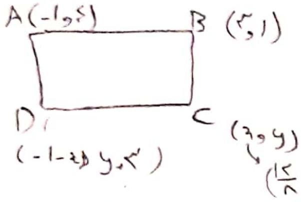
$y = -\frac{1}{2}x + b$

$k = -\frac{1}{2} \times -2 + b = 1 + b$ $\quad m = -\frac{1}{2} \times 4 + b = b - 2$

$AB = \sqrt{(4-(-2))^2 + (b-2-b-1)^2} = \sqrt{36+9} = \sqrt{45}$

$S = (\sqrt{45})^2 = 45$

۲-



$AB = \sqrt{(3-(-1))^2 + (1-4)^2} = \sqrt{16+9} = 5 = CD$

$CD = \sqrt{(2x+1)^2 + (3)^2} = \sqrt{16+9}$

$4x^2 + 4x + 1 = 16 \Rightarrow 4x^2 + 4x - 15$

$\Delta = 16 + 240 = 256$

$x = \frac{-4 \pm \sqrt{256}}{8} = \frac{12}{8}, -\frac{20}{8}$

$m_{AB} = \frac{4-1}{-1-3} = -\frac{3}{4} \Rightarrow m_{BC} = \frac{4}{3}$

$y = \frac{4}{3}x + b = \frac{4}{3}x - 3$

$1 = \frac{4}{3} \times 3 + b \Rightarrow b = -3$

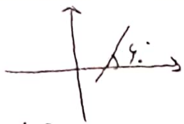
$y = \frac{4}{3} \times \frac{12}{8} - 3 = -1$

$BC = \sqrt{(3 - \frac{12}{8})^2 + (1-(-1))^2} = \sqrt{\frac{9}{4} + 4} = \sqrt{\frac{25}{4}} = \frac{5}{2}$

$P = 2(\frac{5}{2} + 5) = 15$ جواب نهایی

۳-

$(m^2-1)y = -2mx + 3$



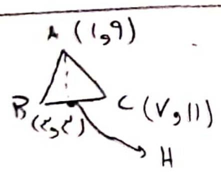
$m = \frac{-2m}{m^2-1} = \tan\alpha = \tan 60° = \sqrt{3} \Rightarrow \sqrt{3}m^2 - \sqrt{3} = -2m \quad \sqrt{3}m^2 + 2m - \sqrt{3} = 0$

$\Delta = 4 + 4 \times 3 = 16$

$m = \frac{-2 \pm 4}{2\sqrt{3}}$ → $-\frac{3}{\sqrt{3}}$ (۱) , $\frac{1}{\sqrt{3}}$ (۲)

$\frac{1}{\sqrt{3}} - -\frac{3}{\sqrt{3}} = \frac{4}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{4\sqrt{3}}{3}$

۴-

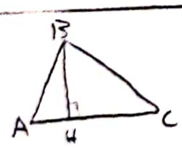


$AH = \frac{|ax+by+c|}{\sqrt{a^2+b^2}} = \frac{|-2 \times 1 + 9 + 3|}{\sqrt{4+1}} = \frac{10}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = 2\sqrt{5}$

$m_{BC} = \frac{11-3}{7-3} = \frac{8}{4} = 2 \Rightarrow y = 2x + b \Rightarrow y = 2x - 3$

$3 = 2 \times 3 - 3$

۵-



$AB: y = -2x + 7$

$AC: 4y = 3x + 17$

$BC: 2y = 7x - 19$

$B = \begin{cases} BC: 2y = 7x - 19 \\ AB: y = -2x + 7 \quad (\times 2) \end{cases}$

$7x - 19 = -4x + 14$

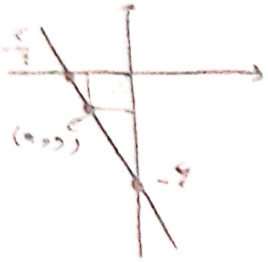
$11x = 33$

$x = 3 \quad y = 1$

$BH = \frac{|4y - 3x - 17|}{\sqrt{16+9}} = \frac{4 - 9 - 17}{5} = \frac{22}{5}$

$\frac{22}{5}$

۶-



$\frac{y}{-۶}+\frac{x}{-\frac{۳}{۴}}=۱$

$(\frac{y}{-۶}-\frac{۴x}{۳}=۱)\times -۶=$

$y+۸x=-۶ \quad y=-۸x-۶$

$y=x \Rightarrow x=-۸x-۶$

$۹x=-۶$

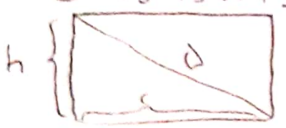
$x=-\frac{۶}{۹}=-\frac{۲}{۳}$

$\sqrt{۲}\times\frac{۲}{۳}=\frac{۲\sqrt{۲}}{۳}$

$\frac{۲\sqrt{۲}}{۳}$

۷-

① $ay-x=a-۱$



$ay=x+a-۱ = y=x$

② $y-ax=۱ \longrightarrow y=ax+۱ = y=x+۱$

$m_۱=m_۲ \Rightarrow \frac{۱}{a}=\frac{a}{۱} \Rightarrow a=۱$

$h=\frac{|۱-۰|}{\sqrt{۱+۱}}=\frac{۱}{\sqrt{۲}}=\frac{\sqrt{۲}}{۲}$

$(\frac{\sqrt{۲}}{۲})^۲+c^۲=۵^۲$

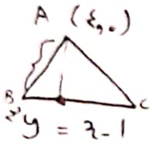
$\frac{۱}{۲}+c^۲=۲۵$

$c^۲=\frac{۵۰}{۲}-\frac{۱}{۲}$

$c^۲=\frac{۴۹}{۲} \Rightarrow c=\frac{۷}{\sqrt{۲}}=\frac{۷\sqrt{۲}}{۲}$

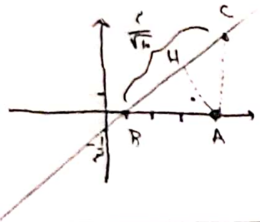
$S=\frac{۷\sqrt{۲}}{۲}\times\frac{\sqrt{۲}}{۲}=\frac{۲\times۷}{۴}=\frac{۷}{۲}$ ⟵ جواب نهایی

۸-



$BC=AH=\frac{|۳y-x+۱|}{\sqrt{۱۰}}=\frac{۳}{\sqrt{۱۰}}$

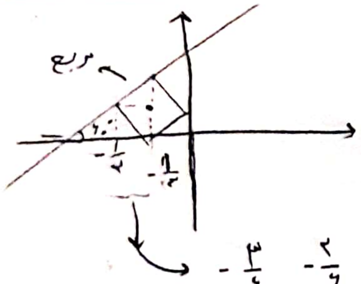
AB , AC جفت ⟵ هر کدام می‌توانند برابر $\frac{۳}{\sqrt{۱۰}}$ باشد



$S_{ABC}=(\frac{۳}{\sqrt{۱۰}}\times\frac{۳}{\sqrt{۱۰}})\times\frac{۱}{۲}=\frac{۹}{۲۰}$

۹-

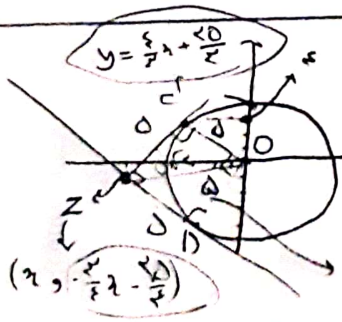
$\tan\alpha=\sqrt{۳} \Rightarrow \alpha=۶۰°$



$۲\times\frac{۱}{۶}=\frac{۱}{۳}$ ⟵ طول قطر

$-\frac{۳}{۶} \quad -\frac{۲}{۶} \xrightarrow{\text{فاصله}} =\frac{۱}{۶}$

۱۰-



$m_{CZ}=-m_{OD}=\frac{۰-۴}{۰-۳}=\frac{۴}{۳}$

$y=\frac{۴}{۳}x+b \Rightarrow y=\frac{۴}{۳}x$

$m_{ZD}=-\frac{۳}{۴}$

$y=-\frac{۳}{۴}x+b$

$-۴=+\frac{۹}{۴}+b \to -\frac{۲۵}{۴} \Rightarrow y=-\frac{۳}{۴}x-\frac{۲۵}{۴}$

$r=\sqrt{۴^۲+۳^۲}=۵$

$\frac{|c-c'|}{\sqrt{a^۲+b^۲}}=\frac{|۰-c'|}{\sqrt{\frac{۱۶}{۹}+۱}}=۵ \Rightarrow \frac{۲۵}{۳}=c'$

$(-\frac{۳}{۴}x-\frac{۲۵}{۴}=\frac{۴}{۳}x+\frac{۲۵}{۳})\times۱۲ \Rightarrow -۹x-۷۵=۱۶x+۱۰۰$

$-۲۵x=۱۷۵$

$x=-\frac{۱۷۵}{۲۵}=-۷$

$y=-۱$

$x+y=-۱-۷=-۸$ جواب