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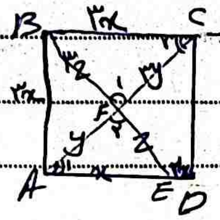
نام و نام خانوادگی: زهرا سادات حسینی   تکلیف شماره: ۲۱   کلاس یازدهم B دختر



$\hat{F}_1 = \hat{F}_2$, $\hat{C}_1 = \hat{A}_1$ } $\overset{\triangle}{BFC} \sim \overset{\triangle}{AFE} \rightarrow \frac{BC}{AE} = 3 = \frac{BF}{FE} = \frac{CF}{AF}$; $\frac{EF}{AF} = \frac{\frac{\sqrt{10}}{4}}{\frac{3\sqrt{2}}{4}} = \frac{\sqrt{5}}{3}$ ①

$\overset{\triangle}{ABE}$ در فیثاغورس $(2z)^2 = x^2 + (3x)^2 \rightarrow z = \frac{\sqrt{10}\,x}{4} = EF$

ABC در فیثاغورس $(4y)^2 = (3x)^2 + (3x)^2 \rightarrow y = \frac{3\sqrt{2}}{4}x$] $= AF$

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$\hat{A} = \hat{A}$ مشترک, $\hat{E} = \hat{C}$ } $\overset{\triangle}{ADE} \sim \overset{\triangle}{ABC} \rightarrow \frac{2}{1+x} = \frac{x}{15} \rightarrow 30 = x + x^2 \rightarrow x^2 + x - 30 = 0 \rightarrow (x+6)(x-5) = 0$ ②

$x = 5$

$x = -6$ غ ق ق ، $x = 5$ ق ق

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$\frac{x}{x+1.2y} = \frac{DE}{BC} = \frac{0.6y}{1.8y} = \frac{1}{3}$, $x = 0.6y$ ③

$\overset{\triangle}{DHE} \sim \overset{\triangle}{FHC}$

$\frac{x}{y} = \frac{0.6y}{y} = 0.6 = \frac{DE}{FC} \rightarrow DE = 0.6FC, \; DE = \frac{BC}{3} \Rightarrow 0.6FC = \frac{1}{3}BC \rightarrow BC = 1.8FC$

$BC - FC = BF$; $1.8FC - FC = 3 \rightarrow 0.8FC = 3 \rightarrow FC = \frac{3 \times 10}{8} = \frac{15}{4}$

$BC = FC + BF$

$BC = \frac{15}{4} + 3 = 6.75$

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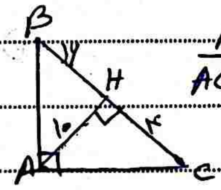

$\frac{AB^2}{AC^2} = \frac{16 \times 20}{4 \times 20} \Rightarrow \frac{AB}{AC} = \frac{4\sqrt{20}}{2\sqrt{20}} = 2$ ④

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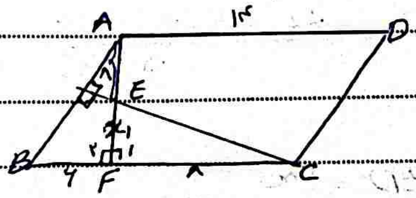

$F_1 = F_2 = 90° \rightarrow \overset{\triangle}{ABF} \sim \overset{\triangle}{CEF} \rightarrow \frac{x}{4} = \frac{8}{8+x} \rightarrow x = 4$ ق ق ، -12 غ ق ق ⑤

$AF = 4 + 8 = 12$

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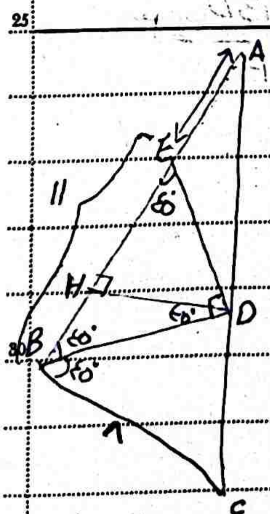

$OH \parallel BC \rightarrow \hat{B} = 90°$ ⑥

$DH \parallel BC$, BD مورب $\rightarrow \overset{\triangle}{BHD}$ ⇒ HD ارتفاع و میانه وارد بر وتر $\rightarrow x = \frac{11}{2}$

متساوی‌الساقین مورب

تالس ⇒ $\frac{AH}{HB} = \frac{HD}{BC} \Rightarrow \frac{5.5 + AE}{11 + AE} = \frac{5.5}{8} \rightarrow AE = 6.6$

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$$\frac{S_{\square}}{S_{CHD}} = \frac{2\times S_{CDA}}{S_{CHD}} = \frac{\ldots}{\ldots} = 8$$

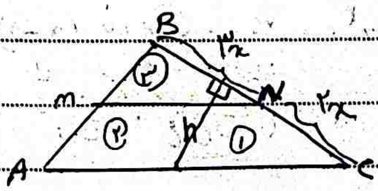
(۳) (۷)

$\hat{H} = \hat{H'} = 90^\circ$

$AH' = HC = x$

$\hat{A}_1 = \hat{C}_1$ طبق خطوط موازی

$\overset{\triangle}{AH'B} \cong \overset{\triangle}{DHC} \to HD = BH$

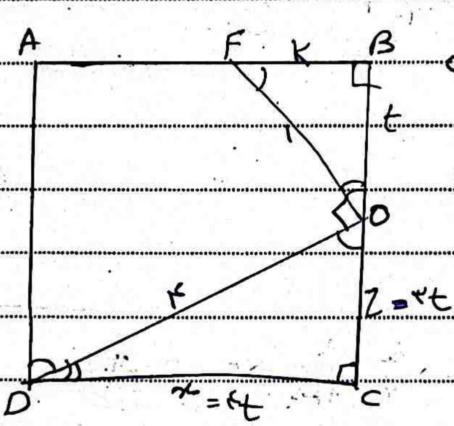


$BN = \frac{3}{2} NC \to S_{ABC} = \frac{?}{5} S_{BMN}$

(۲) (۸)

$$\frac{S_{BMN}}{S_{ABC}} = \frac{BM \times BN}{BA \times BC} = \frac{BM}{BA} \times \frac{3}{5} = \frac{1}{3}$$

$$\frac{BM}{AB} = \frac{5}{9} \to \frac{BM}{AM} = \frac{5}{4}$$



طبق شکل $\overset{\triangle}{OBF} \sim \overset{\triangle}{OCD} \to \frac{4}{1} = \frac{x}{t} = \frac{Z}{k}$

(۹) (۴)

$4k + t = x = 4t \to 4k = 3t = Z$

$\overset{\triangle}{OCD}$ فیثاغورث $\to (3t)^2 + (4t)^2 = (5t)^2$

$t = \frac{4}{5} \leftarrow 4 = 5t$

$S_{مربع} = x^2 = \frac{16}{5} \times \frac{16}{5} = \frac{256}{25}$, $x = 4t = 4 \times \frac{4}{5} = \frac{16}{5}$

$BD \to$ میانه / میانه‌ها به نسبت ۱ به ۲ تقسیم می‌کنند

$CO \to$ میانه

$GB = 6x$

$BD = x$

$GF = 2x$

(۲)

$GD \to$ میانه / $EG = EC \to AE$ میانه

$$\frac{BD}{FD} = \frac{6x + 2x + x}{x} = 9$$

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