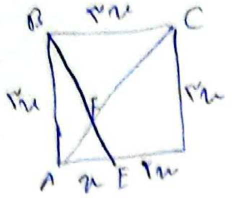
کاظم جادی نژاد   یازدهم ریاضی B

۱)



تشابه BCF, AFE

$$\frac{BC}{AE}=\frac{CF}{AF}=\frac{BF}{FE}=3$$

۲)

$$\left.\begin{array}{l}\hat{A}=\hat{A}\\ \hat{E}_1=\hat{C}\end{array}\right\} \Rightarrow AED\simeq ABC \quad \frac{15}{x}=\frac{x+1}{2} \Rightarrow x=5$$

۳)

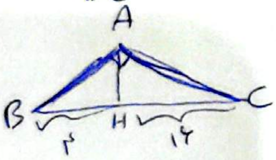
$$1,2y=3x \quad DE\parallel BC \to \frac{x}{\underset{x+2x\to 3x}{}}=\frac{DE}{BC}=3 \ (1)$$

$$\left.\begin{array}{l}\hat{D}=\hat{C}\\ \hat{E}=\hat{F}\\ \hat{H}_1=\hat{H}_2\end{array}\right\} \to DEH\sim FHC \to \frac{DE}{FC}=\frac{EH}{FH}\xrightarrow[y=\frac{5}{3}x]{} CF=\frac{5}{3}DE \ (2)$$

$$(1),(2)+BC=BF+FC \to 3\times DE=3+\frac{5}{3}DE \to \underbrace{3DE-\frac{5}{3}DE}_{\frac{4}{3}DE}=3 \Rightarrow DE=\frac{9}{4}$$

$$\to \frac{DE}{BC}=3 \Rightarrow BC=3\times\frac{9}{4}=\frac{27}{4}$$

۴)

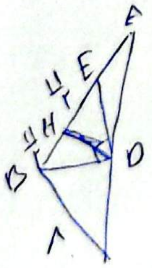


روابط طولی: $AB^2=BH\times BC$, $AC^2=CH\times BC$ $\Rightarrow$ $AB^2=4\times 20 \to AB=4\sqrt{5}$, $AC^2=16\times 20 \to AC=8\sqrt{5}$, $\frac{AB}{AC}=\frac{1}{2}$

۵)

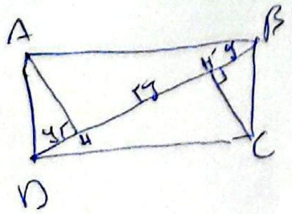
$$ECF\simeq AEG\simeq ABF \quad \frac{AF}{FC}=\frac{BF}{EF} \to \frac{x+8}{8}=\frac{6}{x} \to x=4 \quad AF=12$$

۶)



$$DH^2=\frac{11}{2}\times\frac{11}{2} \Rightarrow DH=\frac{11}{2} \quad \frac{AE+\frac{11}{2}}{11+AE}=\frac{\frac{11}{2}}{8} \Rightarrow x=\frac{33}{5}$$

۷)



ABD قائم الزاویه

$$(AH)^2=y\times 3y=3y^2 \to AH=\sqrt{3}y$$

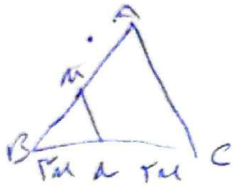
مساحت $ADH=\frac{hy}{2} \to \frac{\sqrt{3}y^2}{2}$

مساحت $ABCD=S_{ABD}+S_{BCD}=2S_{ABD} \to 2\times\frac{1}{2}\times\sqrt{3}y\times 4y=4\sqrt{3}y^2$

نسبت: $\frac{4\sqrt{3}y^2}{\frac{\sqrt{3}}{2}y^2}=8$

Scanned with CamScanner

۸)



$$S_{BMN} = \frac{AM \times \text{۳}AM \times \sin B}{\text{۲}}$$

$$S_{ABC} = \frac{(AB)\,\text{۵}a \times \sin B}{\text{۲}}$$

$$\longrightarrow \frac{S_{ABC}}{S_{BMN}} \quad \xrightarrow[\text{نتیجه}]{} \quad \text{۴}AM = \text{۵}MB$$

$$\boxed{\frac{BM}{AM} = \frac{\text{۵}}{\text{۴}}}$$

۹)

۱۰)