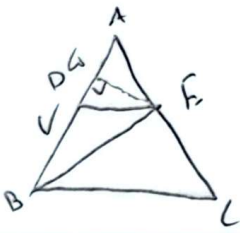


$$S_{ADE} = 9x \quad S_{BDE} = 4x \quad \triangle ADE \sim \triangle ABC \Rightarrow \frac{S_{ABC}}{S_{ADE}} = \left(\frac{14}{4}\right)^2$$



$$S_{ABC} = \frac{14^2}{4} x$$

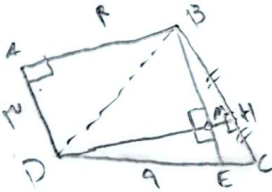
$$S_{BCE} = S_{ABC} - S_{ABE} = \frac{14^2}{4} x - 4x = \frac{14^2}{4} x$$

$$\frac{S_{BCE}}{S_{BDE}} = \frac{\frac{14^2}{4} x}{4x} = \frac{14}{4} = 3.5$$

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$$M_1 = M_2 = 90^\circ \Rightarrow \triangle BDM \cong \triangle DME \rightarrow BM = ME$$

$$\underline{BH \perp DC} \Rightarrow \triangle BMH \sim \triangle BEC \Rightarrow \frac{BM}{BE} = \frac{MH}{EC} \Rightarrow MH = 2$$

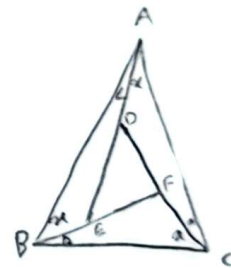


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$$\begin{aligned} \hat{D} &= \alpha + a = \hat{C} \\ \hat{F} &= \alpha + b = \hat{B} \\ \hat{E} &= \alpha + c = \hat{A} \end{aligned}$$

$$\Rightarrow \triangle ABC \sim \triangle DEF$$

$$\frac{AB}{EF} = \frac{BC}{DF} \Rightarrow AB = \frac{1 \times 4}{1.6} = 2.5$$



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$$\hat{C}_1 = \hat{M}_1 = \alpha$$

$$\cos \alpha = \frac{4}{4\sqrt{5}} = \frac{1}{\sqrt{5}} \rightarrow FM = \frac{4\sqrt{5}}{2}$$

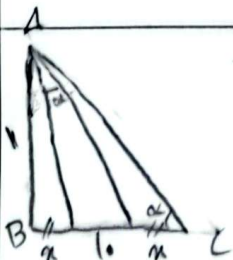
$$DC \parallel MB \Rightarrow \triangle DCE \sim \triangle MEB$$

$$\rightarrow \frac{DE}{MB} = \frac{CE}{ME} \Rightarrow \frac{1}{2} CE = ME = \alpha$$

$$\rightarrow 2\alpha = 4\sqrt{5} \Rightarrow \alpha = 2\sqrt{5}$$

$$S_{FME} = \frac{4\sqrt{5}}{2} \times \frac{2\sqrt{5}}{2} = \frac{16}{2} = 8$$

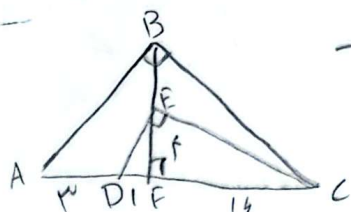
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$$\frac{14}{10+2\alpha}$$

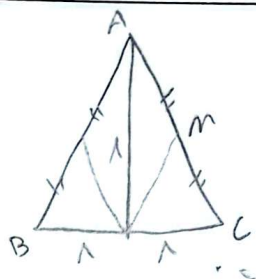
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$$EF \perp DF \times FC \Rightarrow FC = 14 \cdot \omega \quad BC \perp FC \times AC$$



$$\rightarrow BC = \sqrt{14 \times 14} = 14\omega$$

6



$$AC = 14\sqrt{14}$$

$$MH = \frac{AC}{14}$$

$$MH = 14\sqrt{14}$$

7

$$E_1 = E_2 = 90^\circ \Rightarrow \triangle OEC \cong \triangle OBE \rightarrow EC = BE$$

$$BC = 14\sqrt{14} \quad \tan \angle O = \frac{OE}{\sqrt{14}} = \frac{14}{14} \Rightarrow OE = \frac{\sqrt{14}}{14}$$

$$\omega = \frac{\sqrt{14}}{14} \times AE \Rightarrow AE = 14\sqrt{14}$$

8

$$\sin \alpha = \frac{9}{14\sqrt{14}} = \frac{14}{14} \quad DC = 14 \sin \alpha = \frac{9}{14}$$

$$EC = \frac{DC}{\frac{14}{14\sqrt{14}}} \times \cos \alpha = \frac{9}{14} \Rightarrow BE = 9 - \frac{9}{14} = 1, 1$$

9

$$AC = \sqrt{14^2 + 14^2} = 14\sqrt{2}$$

$$\triangle ABC \sim \triangle AHB \sim \triangle ADE$$

$$\frac{AC}{AB} = \frac{AH}{AB} \Rightarrow AH = 14, 1 \Rightarrow AE = 14, 1$$

$$\frac{DE}{AE} = \frac{BC}{AC} \Rightarrow DE = 14, 1$$

10