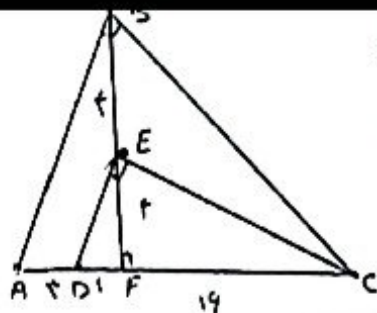


4



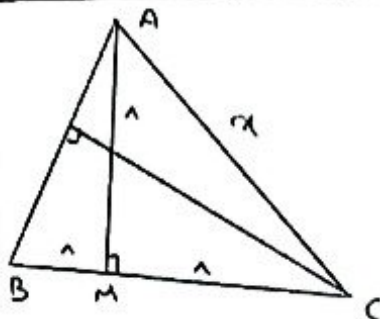
$$EF^2 = DF \times FC \Rightarrow 1 \times FC \Rightarrow EF = 1$$

$$BF^2 = AF \times FC \Rightarrow 4 \times 14 \Rightarrow BF = 2\sqrt{14}$$

$$BC = \sqrt{4 \times 14 + 4} = 2\sqrt{15}$$

5

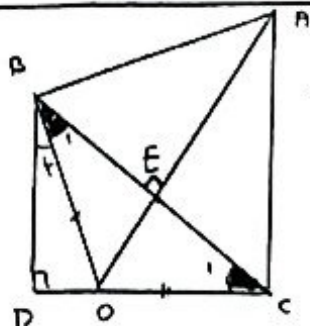
V



$$2 = \sqrt{14} \Rightarrow (\sqrt{14})^2 + (2\sqrt{14})^2 = 14 + 56 = 70 \Rightarrow \sqrt{70}$$

5

A



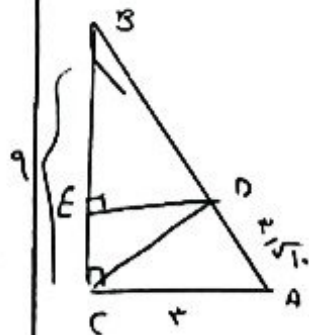
$$BC = 2\sqrt{2} \Rightarrow BE = EC = \sqrt{2}$$

$$\frac{r}{r_0} = \frac{r}{AE} \rightarrow AE = 2\sqrt{2}$$

$$S_{ADE} = \frac{\sqrt{2} \times \sqrt{2}}{2} = 1$$

5

9



$$AB = \sqrt{14^2 + 9^2} = \sqrt{205}$$

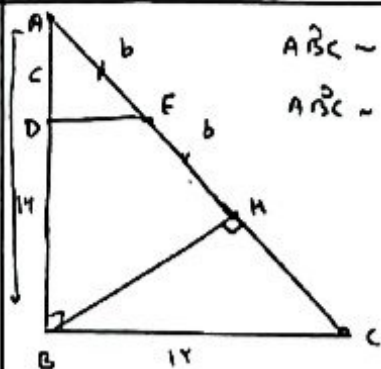
$$\triangle ABC \sim \triangle BDC \Rightarrow \frac{AD}{AC} = \frac{BC}{AB} \Rightarrow AD = \frac{9}{\sqrt{205}}$$

$$BD = \sqrt{14^2 - \left(\frac{9}{\sqrt{205}}\right)^2} = \frac{14\sqrt{205}}{\sqrt{205}}$$

$$AC \perp BC, ED \perp BC \Rightarrow AC \parallel ED \Rightarrow \frac{BD}{BA} = \frac{ED}{EA} \Rightarrow \frac{BD}{BA} = \frac{14/\sqrt{205}}{2\sqrt{205}} \Rightarrow \frac{BE}{BC} = \frac{BE}{9} = \frac{9}{11} \Rightarrow BE = \frac{81}{11}$$

5

10



$$\triangle ABC \sim \triangle ADE \Rightarrow \frac{14}{b} = \frac{11}{c} = \frac{12}{a}$$

$$\triangle ABC \sim \triangle BCH \Rightarrow \frac{BM}{14} = \frac{11-12}{14} = \frac{1}{2} \Rightarrow b = 9, c = 12, BM = 9, 4$$

$$\frac{14}{4/5} = \frac{12}{9} \Rightarrow a = 5, 12 \rightarrow AC = 13$$

5