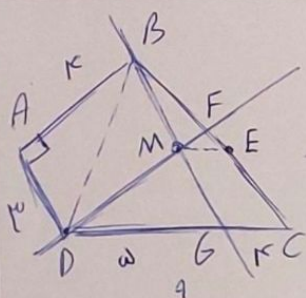


$$\frac{S_{BCE}}{S_{BDE}} = \frac{BC}{DE} = \frac{AB}{AD} = \frac{12}{5} \quad \left[\frac{12}{5} = 2,4 \right]$$

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$$\triangle BDM \sim \triangle MDG \rightarrow DG = BD = 5 \quad [GC = F]$$

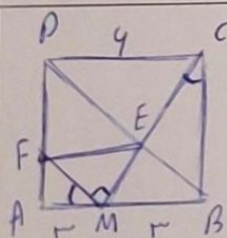
$$\rightarrow BE = CE, BM = MG$$

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$$\triangle ABC = \triangle DEF \quad \frac{DF}{AB} = \frac{EF}{AC} \quad AB = \frac{1 \times 3}{2,5} = \frac{3}{2,5} = 1,2$$

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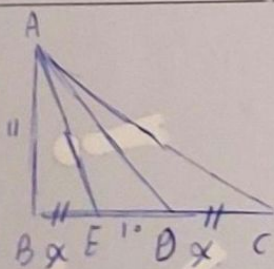


$$MC = \sqrt{4^2 + 3^2} = \sqrt{16 + 9} = 5$$

$$MF = \sqrt{\left(\frac{3}{4}\right)^2 + 3^2} = \frac{3}{4} \sqrt{5}$$

$$S_{MEF} = \frac{1}{2} \left(\frac{3}{4} \sqrt{5} \right) (5) = \frac{15}{8}$$

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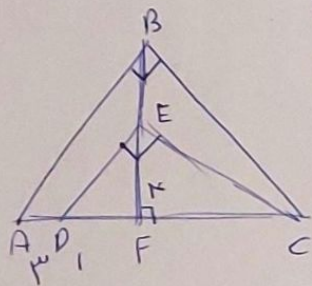
$$\triangle CAE \sim \triangle AEP \rightarrow \frac{CE}{AE} = \frac{AE}{DE} \quad (AE)^2 = CE \times DE$$

$$AE = \sqrt{x^2 + 11^2} \rightarrow (\sqrt{x^2 + 11^2})^2 = (x + 10) \times 10$$

$$x^2 + 121 = 10x + 100 \quad x^2 - 10x + 21 = 0 \quad (x - 7)(x - 3) = 0$$

$$\boxed{x = 7}$$

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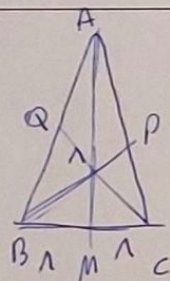


$$FE^r = DF \times FC \quad FE^r = 1 \times FC \quad FC = 14$$

$$EC^r = FC \times DC \quad EC^r = 14 \times 14 \quad EC = \sqrt{14 \times 14} = 14$$

$$\triangle ABC \sim \triangle DEC \quad \frac{BC}{EC} = \frac{AC}{DC} \quad \frac{BC}{14} = \frac{20}{14} \quad BC = \frac{10 \times \sqrt{14}}{14}$$

6



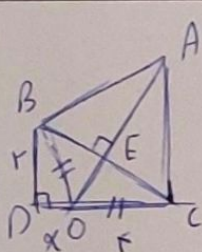
$$AM = \frac{14}{r} = 1$$

$$AC = AB = \sqrt{1^r + 1^r} = \sqrt{2}$$

$$CQ = AQ^r + AC^r \quad (1^r) + (1^r) = 2 \quad CQ = \sqrt{2}$$

$$CQ = BP = \sqrt{2}$$

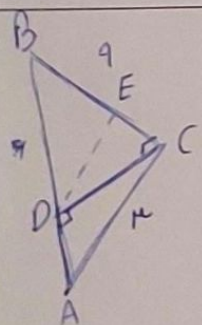
7



$$BO^r = BD^r + DO^r \quad BO^r = x^r + r^r$$

$$BO = OC \quad BO^r = CO^r \quad x^r + r^r = 14 \quad x^r = 1r \quad x = \sqrt{1r}$$

8

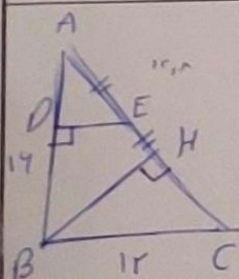


$$AB = \sqrt{r^r + 9^r} = \sqrt{90} = 3\sqrt{10}$$

$$BC^r = BD \times BA \quad (9)^r = BD \times 3\sqrt{10} \quad BD = \frac{3\sqrt{10}}{10}$$

$$BD^r = BE \times BC \quad \left(\frac{3\sqrt{10}}{10}\right)^r = BE \times 9 \quad BE = \frac{3\sqrt{10}}{10} = \frac{3\sqrt{10}}{10}$$

9



$$AC = \sqrt{(14)^r + (1r)^r} = r_0$$

$$AB^r = AH \times AC \quad 14^r = AH \times r_0 \quad AH = \frac{14 \times 1}{r_0} = 1r, 1$$

$$AE = HE = \frac{1r, 1}{r} = 4, r$$

$$\frac{AE}{AC} = \frac{DE}{BC} \quad \frac{4, r}{r_0} = \frac{DE}{1r} \quad DE = 3, 1r$$

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