

$$\frac{BF}{EF} = \frac{FC}{AF} = \frac{BC}{AC}$$

$$BF = 2\sqrt{10} - EF$$

$$FC = 3\sqrt{10} - AF$$

$$\frac{2\sqrt{10} - EF}{EF} = \frac{3\sqrt{10} - AF}{AF}$$

$$\rightarrow AF \times 2\sqrt{10} - EF \times 2\sqrt{10} = EF \times 3\sqrt{10} - AF \times 3\sqrt{10}$$

$$AF \times 2\sqrt{10} = 3\sqrt{10} \times EF$$

$$\frac{EF}{AF} = \frac{2\sqrt{10}}{3\sqrt{10}} = \frac{2}{3} = \frac{\sqrt{4}}{\sqrt{9}} = \frac{\sqrt{4}}{\sqrt{9}}$$

$$\frac{2}{3} = \frac{a}{10}$$

$$2 \times 10 = 3 \times a \rightarrow 20 = 3a \rightarrow a = \frac{20}{3}$$

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$$\frac{DE}{FC} = \frac{a}{y} = \frac{a}{\frac{20}{3}} = \frac{3}{20} \quad FC = \frac{20}{3} DE$$

$$\frac{AE}{AC} = \frac{DE}{BC} = \frac{DE}{\frac{20}{3} FC} = \frac{1}{20}$$

$$\frac{DE}{\frac{20}{3} DE} = \frac{1}{20}$$

$$\frac{a}{\frac{20}{3} y} = \frac{a}{\frac{20}{3} y}$$

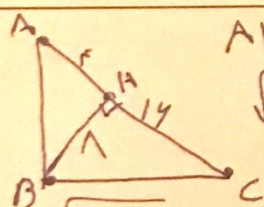
$$BC = \frac{10}{\frac{1}{20}} = 200$$

$$2 + \frac{20}{3} DE = 2 DE$$

$$2 = \frac{2}{3} DE$$

$$DE = \frac{3}{2}$$

$$FC = \frac{20}{3} \times \frac{3}{2} = \frac{10}{1}$$



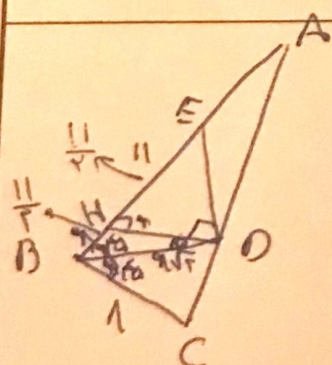
$$AH \times CH = BH^2$$

$$\sqrt{5 \times 19} = \sqrt{1 \times 19}$$

$$AB = \sqrt{5^2 + 1^2} = \sqrt{26}$$

$$BC = \sqrt{19^2 + 1^2} = \sqrt{380}$$

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$$||x|| = 9\sqrt{2} \times BD \rightarrow ||x|| = \sqrt{171 - 169} \times 9\sqrt{2}$$

$$||x|| = \sqrt{171 - 169} \times 9\sqrt{2} \quad 171 = 171 - 169 \quad 169 = 13^2 \quad 9 = \frac{11}{2}$$

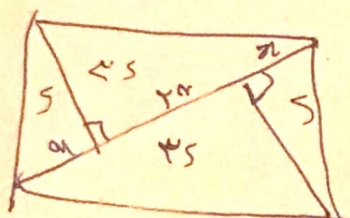
$$\frac{AH}{AB} = \frac{HD}{BC}$$

$$\frac{AE + \frac{11}{2}}{AE + 11} = \frac{\frac{11}{2}}{1}$$

$$||AE|| = \frac{11}{2} \quad ||AE|| = \frac{11}{2}$$

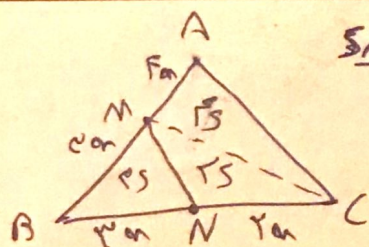
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$$\frac{AS}{S} = \text{triangle}$$

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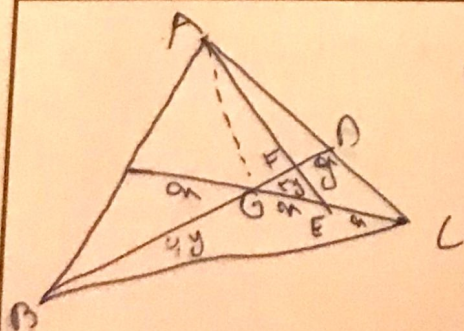
$$\frac{SAB}{rS} = \frac{SAB}{rS} \Rightarrow \frac{DM}{AM} = \frac{r}{S}$$

8

$$\frac{F \times r}{r} + \frac{|x|}{r} + \frac{\sqrt{r} \sqrt{r}}{r} + \frac{|x|}{r} =$$

$$A \rightarrow 1/2 + 1/2 + 1/2 = 1.5$$

9



$$GD \rightarrow \text{triangle}$$

$$BD = 7y$$

10