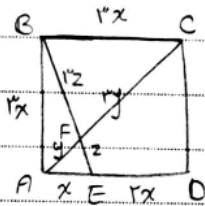


طالع‌نویس: یازدهم بهمن - تالیف: 21



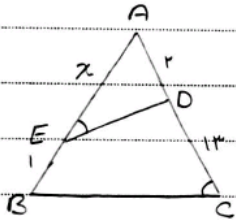
$$\triangle BCF \sim \triangle AFE \rightarrow \frac{BC}{AE} = \frac{FC}{FA} = \frac{BF}{FE}$$

1. (2)

$$\triangle BAE \rightarrow \overline{BA}^2 + \overline{AE}^2 = \overline{BE}^2 \rightarrow (1)^2 + (x)^2 = 1^2 + (1-x)^2 \Rightarrow \sqrt{1+x^2} = 1-x \Rightarrow x = \frac{\sqrt{1-x^2}}{1}$$

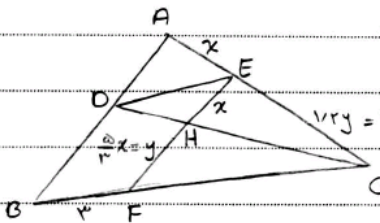
$$\triangle ACD \rightarrow \overline{CO}^2 + \overline{AD}^2 = \overline{AC}^2 \rightarrow (1-x)^2 + (1)^2 = 1^2 + (1-x)^2 \Rightarrow \sqrt{1+(1-x)^2} = 1-x \Rightarrow y = \frac{\sqrt{1+(1-x)^2}}{1}$$

$$\frac{EF}{AF} = \frac{z}{y} = \frac{\sqrt{1-x^2}}{1-x} \times \frac{x}{\sqrt{1+(1-x)^2}} = \sqrt{\frac{1-x^2}{1+(1-x)^2}} = \sqrt{\frac{1-x^2}{1+x^2}} = \frac{\sqrt{1-x^2}}{\sqrt{1+x^2}} \checkmark$$



$$\frac{1}{1+x} = \frac{x}{1+x^2} \rightarrow x + x^2 = 1 \rightarrow x^2 + x - 1 = 0 \rightarrow (x+1)(x-1) = 0 \rightarrow x = -1, 1$$

2. (2)



$$y = 2x \rightarrow y = \frac{2}{3}x \rightarrow \frac{x}{1-x} = \frac{2}{3} \rightarrow x = \frac{2}{5}$$

$$\triangle ADE, \triangle ABC \rightarrow \frac{AE}{AC} = \frac{DE}{BC} = \frac{AD}{AB}$$

$$\triangle DEH, \triangle HFC \rightarrow \frac{DE}{FC} = \frac{DH}{HF} = \frac{EH}{HC}$$

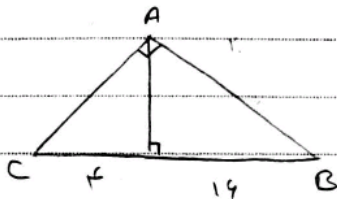
$$\triangle DEH, \triangle HFC \rightarrow \frac{DE}{FC} = \frac{DH}{HF} = \frac{EH}{HC} = \frac{1}{2}$$

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

$$\triangle DEH, \triangle HFC \rightarrow \frac{DE}{FC} = \frac{DH}{HF} = \frac{EH}{HC} = \frac{1}{2}$$

$$\frac{1}{2}DE = 1 \rightarrow DE = 2$$

$$\frac{1}{2} \times \frac{2}{3} = \frac{1}{3} \checkmark$$



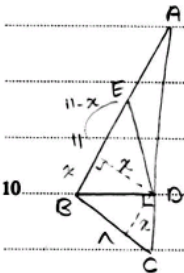
$$\left. \begin{array}{l} AB^2 = BH \times BC \\ AC^2 = CH \times BC \end{array} \right\} \left(\frac{AB}{AC} \right)^2 = \frac{BH}{CH} = \frac{1}{2} \rightarrow \frac{AB}{AC} = \frac{1}{\sqrt{2}}$$

3. (1, 17, 18)

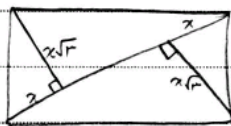
Year: Month: Day: ()

$$EF = -X_2 \varepsilon$$

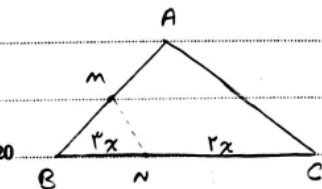
$$AF = EF + AE = 6 + 8 = 14$$



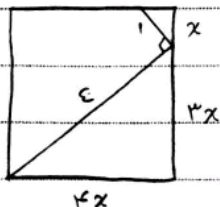
$$EBC \rightarrow x \parallel BC, \Rightarrow \frac{\omega/\omega}{BC} = \frac{AE + \omega/\omega}{11 + AE} \rightarrow AE = 9/9 \checkmark$$



$$\square \quad \frac{\frac{r \times \sqrt{r}}{r} \times r + \frac{x \sqrt{r}}{r} \times r}{\frac{x \sqrt{r}}{r}} = \lambda$$



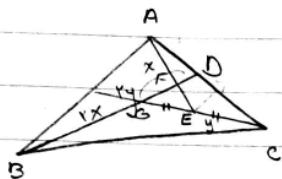
$$\frac{\cancel{1} \times \cancel{2} \times (A_m + B_m) \times \sin \hat{B}}{\cancel{1} \times \cancel{1} \times B_m \times \sin \hat{B}} \Rightarrow \frac{B_m}{A_m} = 1/2 = \frac{1}{2} \quad \checkmark$$



$$(3x)^r + (5x)^r = 19 \rightarrow 9x^r + 19x^r = 19 \Rightarrow 28x^r = 19$$

$$x^y = \frac{14}{10} \Rightarrow x = \frac{7}{5}$$

$$r_x = r \times \frac{r}{\phi} = \frac{14}{8} \rightarrow \frac{14}{8} \times \frac{14}{8} = \frac{196}{64} = 3.0625 \text{ m} \quad \checkmark$$



$$GE = EC$$

$$\triangle AGC \rightarrow GF = EC \rightarrow AE \text{ line}$$

$$BD = AC \text{ line} \rightarrow AD = DC \Rightarrow GD \text{ line}$$

$$F \rightarrow \triangle AGC \Rightarrow \frac{GF}{FO} = \frac{1}{1} \rightarrow \frac{GF+FO}{FO} = \frac{2}{1} = \frac{GD}{FO}$$

$$G \rightarrow \triangle ABC \Rightarrow \frac{BG}{GO} = \frac{2}{1} \rightarrow \frac{BG+GO}{GO} = \frac{3}{1} = \frac{BD}{GO} = 3$$

$$\frac{GF}{FO} \times \frac{BD}{BF} = \frac{BD}{FO} = 3 \checkmark$$