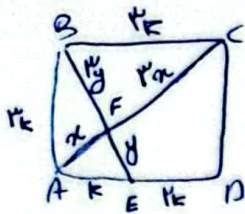


بافتاب مناسبتی در مثلث قائم الزامی: ۲۱

نسبت اضلاع: ۳، ۴، ۵



$$ED = 2AG$$

$$BE^2 = (3x)^2 + 4^2 \rightarrow BE = \sqrt{10}x$$

$$y + 4y = \sqrt{10}x \rightarrow y = \frac{\sqrt{10}}{5}x$$

$$\frac{EF}{AF} = \frac{y}{x} = \frac{\sqrt{10}}{5}$$

$$AC^2 = (3x)^2 + (4x)^2 \rightarrow AC = 5x$$

$$\epsilon x = 4\sqrt{10}x \rightarrow x = \frac{4\sqrt{10}}{\epsilon}$$

$$\hat{AED} = \hat{ACB}$$

$$A = A$$

$$\rightarrow \triangle AED \sim \triangle ACB$$

نسبت اضلاع

$$\frac{AB}{AD} = \frac{AC}{AE}$$

$$\rightarrow \frac{x+1}{x} = \frac{10}{x} \rightarrow x^2 + x = 10$$

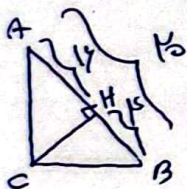
$$\rightarrow x = 3$$

قضیه: $\frac{AE}{AC} = \frac{AD}{AB} = \frac{DE}{BC} \rightarrow \frac{x}{5x} = \frac{DE}{BC} \rightarrow BC = 5DE$

نسبت اضلاع $\rightarrow \frac{EH}{FH} = \frac{DH}{CH} = \frac{DE}{CF} \rightarrow \frac{x}{5x} = \frac{DE}{CF} \rightarrow CF = 5DE$

$\Rightarrow BC = BF + CF$

$DE = \frac{4}{5}$ $BC = 5 \times \frac{4}{5} = 4$



$$\frac{AC}{BC} = ?$$

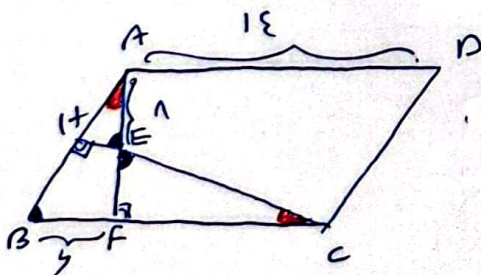
$$CH^2 = \epsilon x 14 \rightarrow CH = 1$$

$$AC \times BC = AB \times CH \rightarrow AC \times BC = 140$$

$$AC^2 = AH \times AB \Rightarrow \epsilon x 10 = 10 \rightarrow AC = \epsilon \sqrt{10}$$

$$BC = 1\sqrt{10}$$

$$AC = \epsilon \sqrt{10} \rightarrow \frac{AC}{BC} = \frac{1}{\epsilon}$$



$$\triangle AFB \sim \triangle CBH$$

نسبت اضلاع

$$\frac{x}{4} = \frac{1}{x+1}$$

$$\rightarrow x^2 + 10x = 4 \rightarrow x^2 + 10x - 4 = 0$$

$$x = 4$$

$$\rightarrow AF = 14 \times 4 = 56$$

