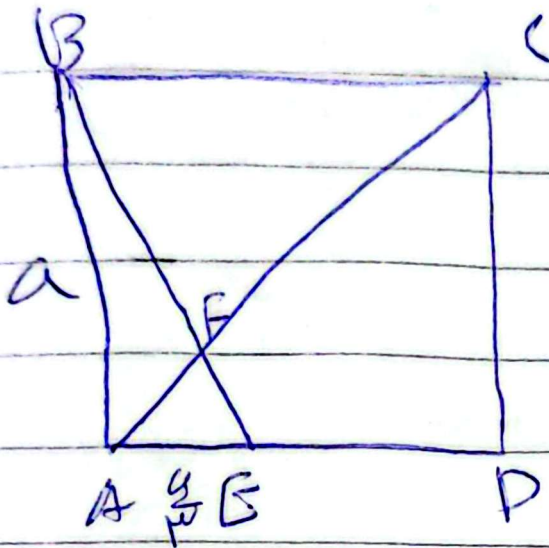


موضوع: علی حیران - تلف ۲۱

تاریخ: / /



$$\frac{AE}{ED} = \frac{BE}{EC} = \frac{1}{3}$$

$$\rightarrow BE = 3EF \rightarrow BE = 4EF$$

$$CF = 3AF \rightarrow AC = 4AF$$

$$BE = \sqrt{a^2 + \frac{a^2}{9}} = \sqrt{10} \frac{a}{3}$$

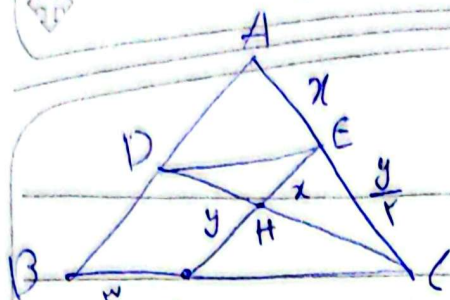
$$BD = a\sqrt{2} \rightarrow \frac{BE}{AE} = \frac{\frac{1}{4}BE}{\frac{1}{4}AC} = \frac{\sqrt{10} \frac{a}{3}}{a\sqrt{2}} = \sqrt{\frac{10}{2}} = \sqrt{5}$$

$$= \sqrt{\frac{a}{3}}$$

۲- چون فادیه رأس دایره دایره دیگر مشترک اند پس دو دایره متماسم اند.

$$\frac{x}{14} = \frac{2}{x+1}$$

$$x^2 + x - 28 = 0 \rightarrow x = 5$$



$DE \parallel BC$

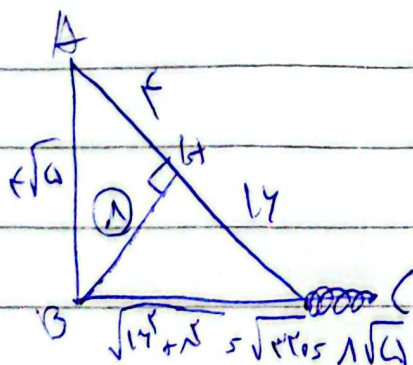
$$y \leq w \rightarrow y \leq \frac{w}{x} \cdot x$$

$$DE \parallel BC \rightarrow \frac{AE}{AC} = \frac{ED}{BC} \rightarrow \frac{x}{x+y} = \frac{DE}{FC+w} = \frac{x}{\frac{11}{4}x} = \frac{4}{11}$$

$$\rightarrow DE = \frac{4(FC+w)}{11} \rightarrow \frac{DE}{FC} = \frac{x}{y} = \frac{x}{\frac{11}{4}x} = \frac{4}{11}$$

$$\rightarrow \frac{4(FC+w)}{11FC} = \frac{4}{11} \rightarrow 10FC + 4w = 11FC \rightarrow FC = 10$$

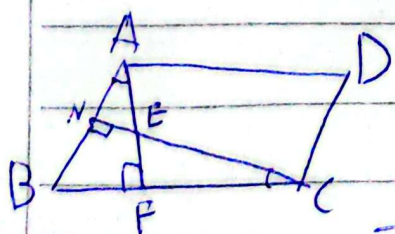
$$\rightarrow BC = FC + BF = 10 + 10 = 20$$



$$BH^2 = AH \cdot AC$$

$$BH^2 = 4 \cdot AC \rightarrow BH = 12$$

$$\frac{12}{10} = \frac{12}{10}$$



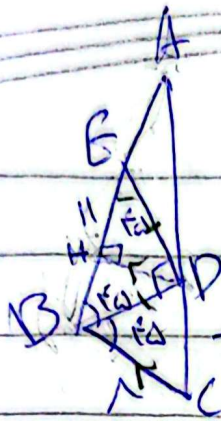
$$\triangle AEC \sim \triangle AFB \rightarrow EF \sim AF$$

$$\rightarrow \frac{EF}{FB} = \frac{FC}{AF} = \frac{EC}{AB} \rightarrow \frac{AF-1}{4} = \frac{1}{AF}$$

$$\rightarrow AF^2 - 1 = 4 \rightarrow AF = 3$$



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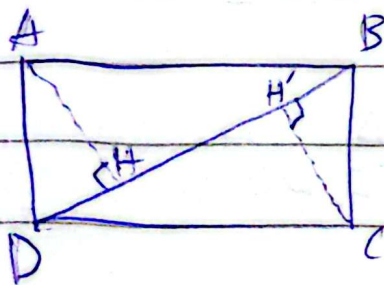
$\triangle BDE \sim \triangle BDC$ (مستقيم) $\rightarrow \angle BDE = \angle BDC$

$$\text{نقطة: } BD = x \rightarrow 2x^2 = 121 \rightarrow x^2 = \frac{121}{2}$$

$$\rightarrow x \cdot x = DH \cdot 11 \rightarrow \frac{121}{2} = DH \cdot 11 \rightarrow DH = \frac{11}{2}$$

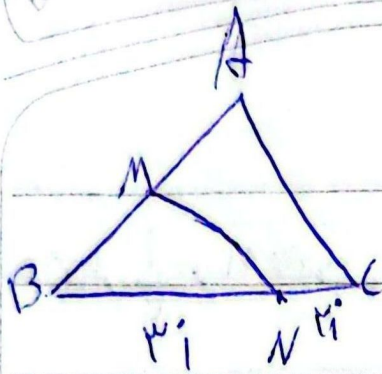
$$\frac{AH}{AB} = \frac{DH}{BC} \rightarrow \frac{AH}{AB} = \frac{\frac{11}{2}}{14} = \frac{11}{28} \rightarrow \frac{AG + \frac{11}{2}}{AG + 11} = \frac{11}{28}$$

$$\rightarrow 14AG + 11 = 11AG + 11 \rightarrow AG = \frac{11}{4}$$



$$\frac{S_{ABCD}}{S_{AMD}} = ?$$

$$\begin{aligned} S_{ABCD} &= 2(S_{ABD}) = 2(AH \cdot BD) = 2 \times 2(AH \cdot HD) = 4 \\ &= 14 \times S_{AMD} \rightarrow \frac{14 S_{AMD}}{S_{AMD}} = 14 \end{aligned}$$



$$\frac{S_{ABC}}{S_{BMN}} = \frac{r^2}{r^2} = 1$$

$$\rightarrow \frac{\frac{1}{2} \times AB \times BC \times \sin B}{\frac{1}{2} \times BM \times BN \times \sin B}$$

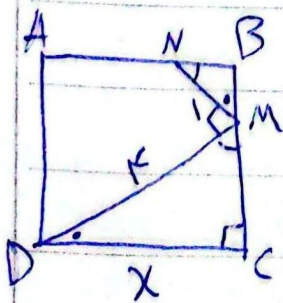
$$\rightarrow \frac{AB \times BC}{BM \times BN} = \frac{r^2}{r^2}$$

$$\frac{BC}{BN} = \frac{r}{r}$$

$$\rightarrow \frac{AB}{BM} \times \frac{r}{r} = \frac{r}{r} \rightarrow \frac{AB}{BM} = \frac{r}{r}$$

$$\rightarrow \frac{AM + BM}{BM} = \frac{AM}{BM} + 1 = \frac{r}{r}$$

$$\rightarrow \frac{AM}{BM} = \frac{r}{r} \rightarrow \frac{BM}{AM} = \frac{r}{r}$$



$$\frac{BN}{MC} = \frac{BM}{DC} = \frac{1}{r} \rightarrow BM = \frac{r}{r}$$

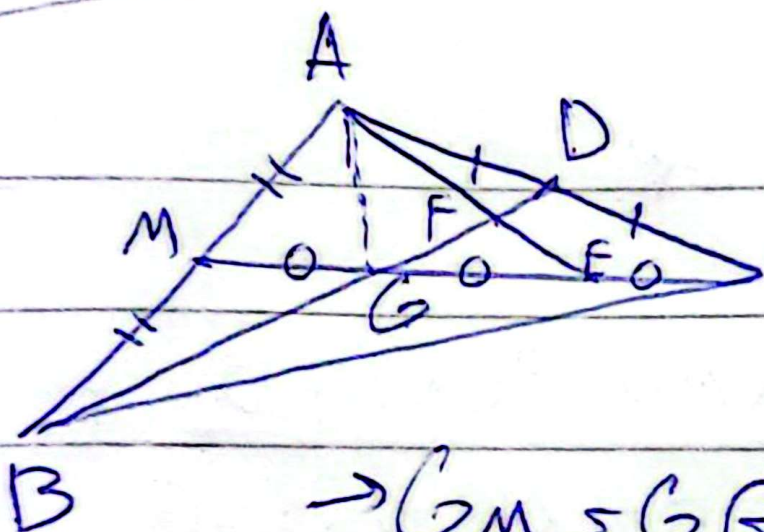
$$\rightarrow MC = \frac{r}{r} \rightarrow x^2 + \frac{9x^2}{14} = 14$$

$$\rightarrow 14x^2 + 9x^2 = 14 \times 14 \rightarrow 23x^2 = 14 \times 14 \rightarrow x^2 = \frac{14 \times 14}{23}$$



تاریخ: / /

موضوع:



۱۰- $GM = \frac{1}{3} MC$ $\rightarrow$ $GM = \frac{1}{3} MC$

$B \rightarrow GM = GB = GC$

$\frac{GD}{BD} = \frac{1}{3}$ $\frac{FD}{GD} = \frac{1}{3} \rightarrow \frac{FD}{BD} = \frac{1}{9}$