

طول ضلع را ۳ در نظر می‌گیریم

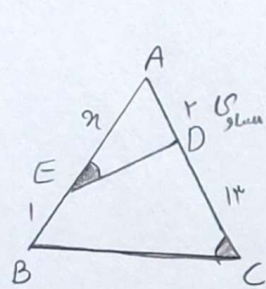
$$\frac{EF}{AF} = ? \rightarrow \frac{\sqrt{10}}{9\sqrt{2}} = \frac{\sqrt{10}}{9\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{20}}{18} = \frac{2\sqrt{5}}{18} = \frac{\sqrt{5}}{9}$$

پاسخ نهایی

مقدار BE $\rightarrow 1+9=10 \rightarrow \sqrt{10} = 2y \rightarrow y = \frac{\sqrt{10}}{2}$

AEF, BCF
نسبت به هم

مقدار AC $\rightarrow 9+9=18 \rightarrow 9\sqrt{2} \Rightarrow 9\sqrt{2} = 2z$
($z = \frac{9\sqrt{2}}{2}$)



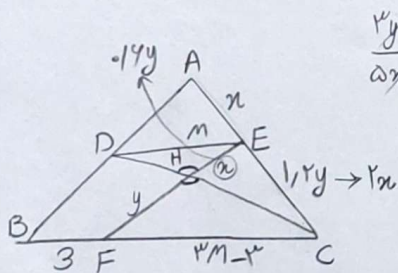
ADE, ABC { (ضرب)
 نسبت به هم

$$\frac{x}{15} = \frac{2}{n+1} \Rightarrow x^2 + n = 2$$

$$x^2 + n - 2 = 0$$

$$(x+2)(x-2)$$

پاسخ نهایی $x = -2$ (منفی)
ضلع مقدار منفی اختیار نمی‌کند



$$\frac{3y}{5x} = \frac{12y}{?x} \rightarrow \frac{12x}{3} = 2$$

$$3y = 5x \rightarrow 12y = x$$

$$3y = 5x$$

DE || FC

تالار در مثل $\rightarrow DE = M$

BC = 3M
FC = 3M - 3

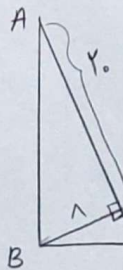
$$3 \times \frac{1}{2} = \left(\frac{27}{2}\right)$$

DEH, FCH $\rightarrow \frac{x \cdot y}{3 \cdot 4y} = \frac{3M - 3}{M}$

$$9M - 9 = 4M$$

$$4M = 9 \rightarrow M = \frac{9}{4}$$

BC = ?



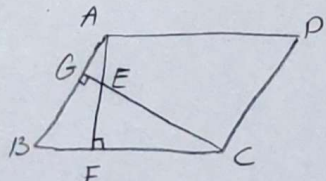
AH = 14
HC = 4

$$BH^2 = AH \times HC \rightarrow 4 \times 14 = 14^2 \rightarrow BH = 14$$

ABH $\rightarrow 14^2 + 4^2 = AB^2 \rightarrow AB = 14\sqrt{5}$

BCH $\rightarrow 14^2 + 4^2 = BC^2 \rightarrow 98 + 14 = 112 \rightarrow 14\sqrt{5} = BC$

پاسخ نهایی $\frac{AB}{BC} = \frac{14\sqrt{5}}{14\sqrt{5}} = 1$



نسبت های
ABF, EFC
نسبت به هم

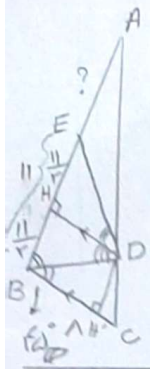
$$\frac{CF}{AF} = \frac{EF}{BF} \Rightarrow \frac{1}{1+n} = \frac{n}{4} \rightarrow 1n + n^2 = 4n$$

$$n^2 + 1n - 4n$$

$$(n+12)(n-4)$$

پاسخ نهایی $n = -12$ (منفی)
ضلع منفی نمی‌کند

AF = ? $\rightarrow x + 1 \Rightarrow 4 + 1 = 5$



$$HD = \frac{11}{r}$$

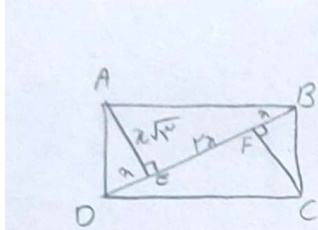
$$\text{مسئله} \rightarrow \frac{AH}{AB} = \frac{DH}{BC} \rightarrow \frac{x + \frac{11}{r}}{x + 11} = \frac{\frac{11}{r}}{1} \rightarrow \frac{rx + 11}{x + 11} = \frac{11}{1}$$

$$14x + 11 = 11x + 121 \rightarrow 3x = 110 \rightarrow x = \frac{110}{3}$$

پاسخ نهایی

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$$\triangle ABD \sim \triangle BCD \rightarrow \frac{AB \times AD}{r} = \frac{AE \times BD}{r} \rightarrow x\sqrt{r} \times \sqrt{r} = \frac{r^2 \sqrt{r}}{r}$$

$$\frac{r^2 \sqrt{r}}{r} = \frac{r^2 \sqrt{r}}{r}$$

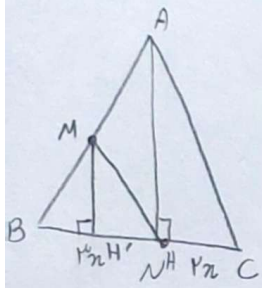
$$\frac{r^2 \sqrt{r}}{r} = \frac{r^2 \sqrt{r}}{r}$$

$$AE \rightarrow x \cdot r = AE^2$$

$$r^2 = AE^2 \rightarrow x\sqrt{r} = AE$$

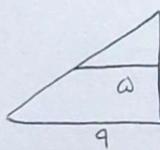
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$$\frac{S_{ABC}}{S_{BMN}} = 3 \rightarrow \frac{\omega x \cdot AH}{r^2 x \cdot MH'} = 3 \rightarrow 9MH' = \omega AH$$

(MH' = \omega, AH = 9) فرض کنیم

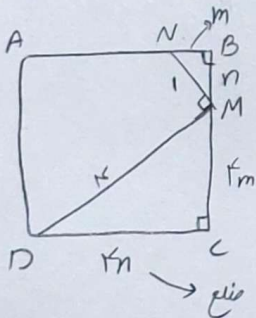


$$\frac{BM}{AM} = ?$$

$$\frac{BM}{AM} = \frac{BH'}{HH'} \rightarrow \frac{\omega x}{r} = \frac{\omega x}{1 \cdot x} = \frac{1}{r}$$

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$$BMN, MCD \rightarrow \frac{MD}{NM} = r$$

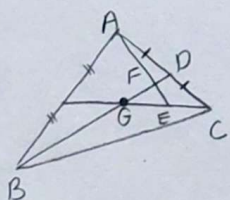
$$14m^2 + 14n^2 = 14 \rightarrow m^2 + n^2 = 1 \rightarrow \frac{4n^2}{14} + n^2 = 1 \rightarrow \frac{4n^2}{14} = 1$$

$$4n^2 = 14 \rightarrow n^2 = \frac{14}{4}$$

$$(r_n)^2 \rightarrow 14 \times \frac{14}{4} = \frac{14^2}{4} = 101.5$$

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$$GE = EC, EC = n$$

$$GE + EC = BG$$

$$BD = BG + GD \rightarrow GF + FD$$

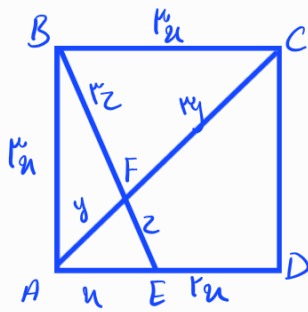
$$\frac{BD}{FD} = ? \rightarrow \frac{BG + GD}{FD} \rightarrow \frac{r_n + GF + FD}{FD} =$$

$$BG = ry, GD = y \rightarrow BD = ry$$

$$\left. \begin{array}{l} GF = \frac{ry}{r} \\ FD = \frac{1}{r}y \end{array} \right\} \rightarrow \frac{BD}{FD} = \frac{ry}{\frac{1}{r}y} = r$$

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$$BE^2 = (r_z)^2 + a^2 \rightarrow BE = \sqrt{10}a \rightarrow z + r_z = \sqrt{10}a \rightarrow z = \frac{\sqrt{10}}{F}a \quad (1)$$

$$(AC)^2 = (r_z)^2 + (r_y)^2 \rightarrow AC = \sqrt{2}a \rightarrow r_y = \sqrt{2}a \rightarrow y = \frac{\sqrt{2}}{F}a$$

$$\frac{EF}{AF} = \frac{z}{y} = \frac{\sqrt{10}}{\sqrt{2}}$$

$$\frac{S_{ABC}}{S_{BMN}} = \frac{\frac{1}{2} \times AB \times BC \times \sin B}{\frac{1}{2} \times BM \times BN \times \sin B} = \mu \quad (1)$$

$$\frac{AB}{BM} = \frac{4}{5} \rightarrow \frac{AB - BM}{BM} = \frac{4}{5} \rightarrow \frac{AM}{BM} = \frac{4}{5}$$