

طول ضلع را ۳ در نظر می‌گیریم

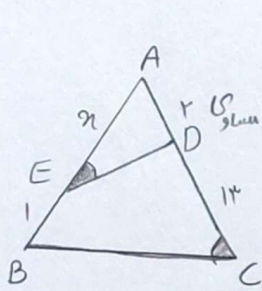
$$\frac{EF}{AF} = ? \rightarrow \frac{\sqrt{10}}{9\sqrt{2}} = \frac{\sqrt{10}}{9\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{20}}{18} = \frac{2\sqrt{5}}{18} = \frac{\sqrt{5}}{9}$$

پاسخ نهایی

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

AEF, BCF
نسبت به هم

AC مقدار $\rightarrow 9+9=18 \rightarrow 4\sqrt{2} \Rightarrow 9\sqrt{2} = 4z$
($z = \frac{9\sqrt{2}}{4}$)



ADE, ABC { (ضرب) $\rightarrow$ $\frac{a}{15} = \frac{2}{n+1} \Rightarrow n^2+n=20$
نسبت به هم

نسبت به هم $\rightarrow$ طبق صورت هاسو، خورده هاسو

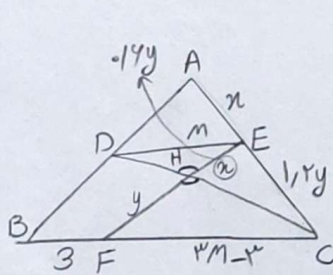
$$\frac{a}{15} = \frac{2}{n+1} \Rightarrow n^2+n=20$$

$$n^2+n-20=0$$

$$(n+5)(n-4)=0$$

$$n = -5, 4$$

پاسخ نهایی $n=4$



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

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

$3y = 5x$
DE || FC

تالار در مقابل $\rightarrow DE = M$

BC = 3M
FC = 3M - 3

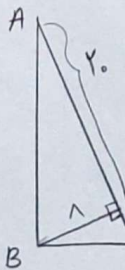
$3 \times \frac{1}{2} = \frac{27}{2}$ پاسخ نهایی

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

$9M-9=4M$

$5M=9 \rightarrow M = \frac{9}{5}$

BC = ?



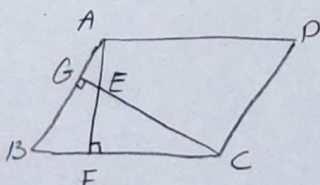
AH = 14
HC = 4

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

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

$\triangle BCH \rightarrow 14^2 + 4^2 = BC^2 \rightarrow 98 + 16 = 114 \rightarrow 10\sqrt{2} = BC$

پاسخ نهایی $\frac{AB}{BC} = \frac{14\sqrt{2}}{10\sqrt{2}} = \frac{7}{5}$



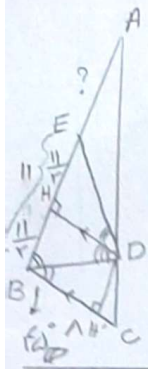
نسبت های
ABF, EFC
نسبت به هم

$\frac{CF}{AF} = \frac{EF}{BF} \Rightarrow \frac{1}{1+n} = \frac{n}{4} \rightarrow 1n + n^2 = 12$

$n^2 + 1n - 12 = 0$
($n+4$)($n-3$)

$n = -4, 3$
پاسخ نهایی $n=3$

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



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

$$\text{وگه} \rightarrow \frac{AH}{AB} = \frac{DH}{BC} \rightarrow \frac{x + \frac{11}{r}}{x + 11} = \frac{\frac{11}{r}}{11} \xrightarrow{\times r} \frac{rx + 11}{x + 11} = \frac{11}{11}$$

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

پاسخ صحیح

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

مستطیل

ADEJ مثلث $\rightarrow \frac{x\sqrt{r} \times x}{r} = \frac{r^2 \sqrt{r}}{r}$

ب AE $\rightarrow x \cdot \sqrt{r} = AE^r$

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

$\frac{rx\sqrt{r}}{r} = \frac{r^2 \sqrt{r}}{r} = \text{پاسخ صحیح}$

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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

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

$\frac{BH'}{r} = \frac{MH'}{r} \rightarrow \frac{\omega}{r} = \frac{\omega}{r}$

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

پاسخ صحیح

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

مستطیل

مربع MPC $\rightarrow 14m^2 + 14n^2 = 14 \rightarrow m^2 + n^2 = 1 \xrightarrow{I} \frac{4n^2}{14} + n^2 = 1 \rightarrow \frac{2an^2}{14} = 1$

$2an^2 = 14 \rightarrow n^2 = \frac{14}{2a}$

پاسخ صحیح

مساحت مربع $\rightarrow (rn)^2 \rightarrow 14 \times \frac{14}{2a} = \frac{254}{2a} = 10125$

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GE = EC, EC = n

GE + EC = BG

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

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

چون G مرکز ثقل است AB و AC، پس در راستای مساوی تقسیم کند، CG = BG است.

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