

هستی رفتنی / یازدهم دفتر ح

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$\triangle ADE$ و $\triangle EDB$
 راس مشترک دارند
 و چون نسبت مسافت
 برابر با نسبت
 قاعده ها است

$DE \parallel BC \xrightarrow[\text{تساوی}]{\text{تناسب}} \frac{AD}{AB} = \frac{DE}{BC} = \frac{5}{12}$
 $\rightarrow \frac{S_{\triangle ADE}}{S_{\triangle ABC}} = \left(\frac{5}{12}\right)^2 = \frac{25}{144}$

$\frac{S_{\triangle BCE}}{S_{\triangle BDE}} = ?$
 $\frac{S_{\triangle BCE}}{S_{\triangle BDE}} = \frac{12S}{25S} = \frac{12}{25} = \boxed{2,4}$

2

$\frac{BN}{NC} = \frac{BM}{ME} \rightarrow MN \parallel EC \Rightarrow \frac{MN}{EC} = \frac{1}{2} \rightarrow \boxed{MN = 2}$

3

$\triangle DEF \sim \triangle ABC$
 $\frac{EF}{AB} = \frac{DF}{BC} \Rightarrow \boxed{AB = 9,6}$

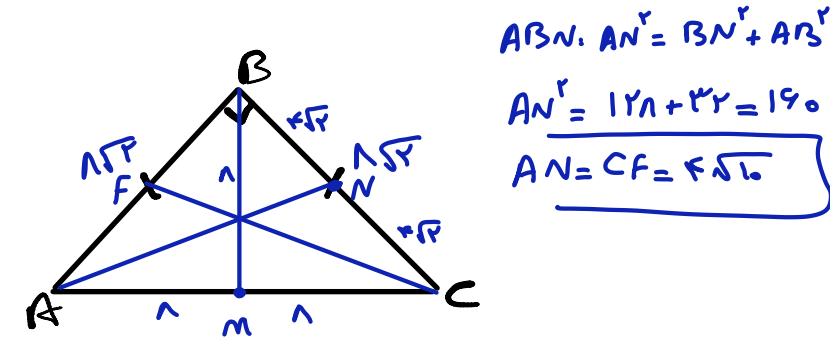
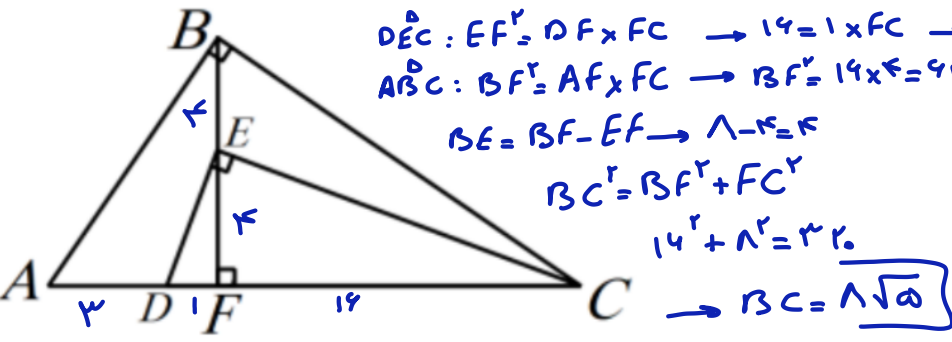
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$\triangle BMC \sim \triangle AMF \rightarrow AF = 1,2$
 $\triangle BME \sim \triangle COM \rightarrow ME = \frac{1}{2} CE$ ①
 $MC = \sqrt{4^2 + 3^2} = 5\sqrt{5}$
 ① $ME = \sqrt{5}, CE = 2\sqrt{5}$
 $MF = \sqrt{\left(\frac{3}{2}\right)^2 + 2^2} = \frac{5}{2}\sqrt{5}$
 $S_{\triangle MEF} = \frac{1}{2} \left(\frac{5}{2}\sqrt{5}\right)(\sqrt{5}) = \boxed{3,125}$

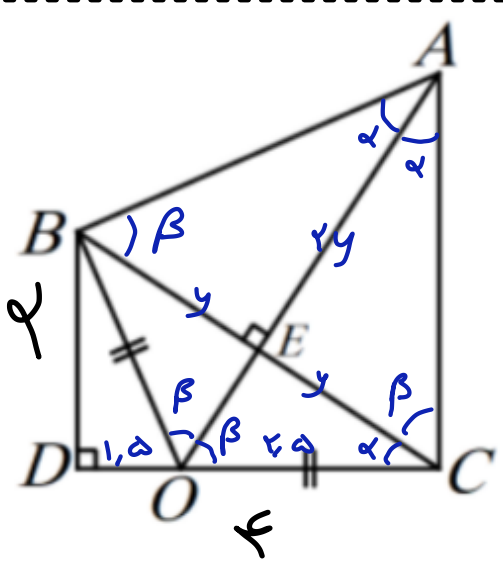
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$\triangle AED \sim \triangle CEA$
 $\frac{AE}{AC} = \frac{AD}{AE} = \frac{EC}{AE}$
 $10 + 10n = 12 + n^2$
 $n^2 - 10n - 12 = 0$
 $n = \boxed{12,1}$

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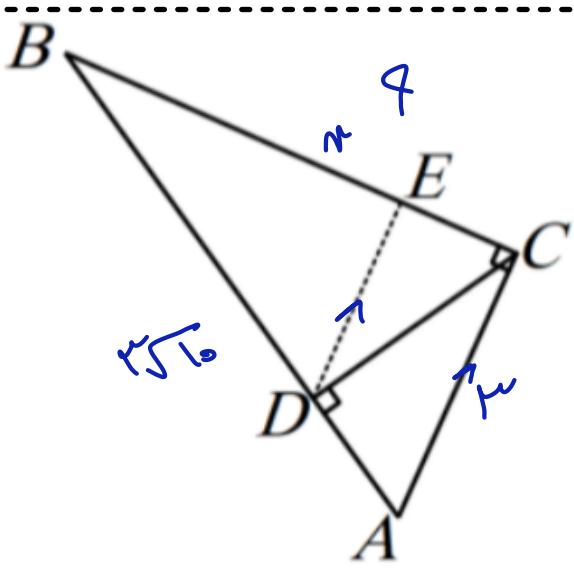


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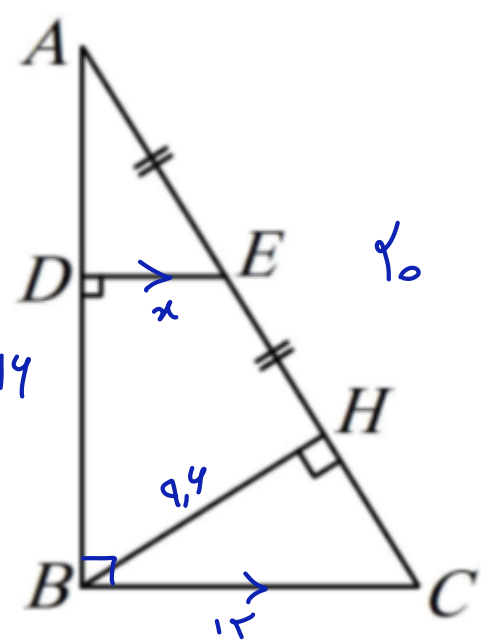
$\triangle BCD \sim \triangle AEB$
 $\tan \alpha = \frac{1}{2} = \frac{BE}{AE} \rightarrow BE = 2$
 $AE = 12$
 $\cos \alpha = \frac{2}{\sqrt{17}}$
 $\triangle OEC: \cos \alpha = \frac{y}{17} = \frac{2}{\sqrt{17}} \rightarrow y = \sqrt{17}$
 $S_{ABE} = \frac{y \times 12}{2} = 12$

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$\triangle ABC: DE \parallel AC \rightarrow \frac{n}{17} = \frac{DE}{17} \rightarrow DE = n$
 $DE^2 = n(17-n)$
 $\frac{n^2}{17} = 17n - n^2 \rightarrow \frac{n^2}{17} = 17n \rightarrow n = 1$

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$BH \times 10 = 17 \times 17 \rightarrow BH = 12$
 $AH^2 = 17^2 - 12^2 = 145$
 $AH = 12$
 $AE = 12$
 $\triangle ABC: DE \parallel BC \rightarrow \frac{AE}{AC} = \frac{n}{BC} \rightarrow \frac{12}{17} = \frac{n}{17} \rightarrow n = 12$

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