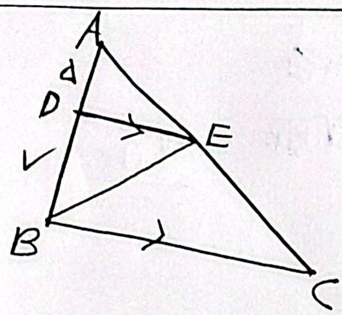
۲۰

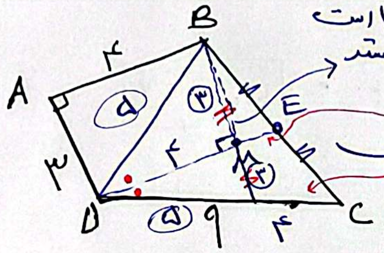
نام و نام خانوادگی ...علی بالامیان... پاسخنامه تشریحی تکلیف شماره ...۲۲... کلاس ...یازدهم ریاضی A...

۱ (۲)



$$\frac{S_{BCE}}{S_{BDE}} \xrightarrow{\text{دو قاعده و ارتفاع برابر}} \frac{BC}{DE} = \frac{12}{5} = 2/4$$

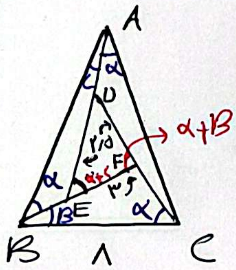
۲ (۲)



چون نیمساز زاویه عمود و ارتفاع است پس مثلث‌ها هم‌نهشت هستند

طبق عکس تالس موازی هستند دو خط $\Rightarrow \frac{ME}{4} = \frac{3}{6} \rightarrow ME = 2$

۳ (۲)

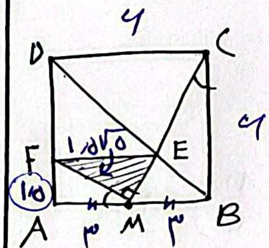


$\hat{E} = \hat{A}$, $\hat{F} = \hat{B} \Rightarrow DEF \sim ABC$

$$\Rightarrow \frac{DF}{BC} = \frac{EF}{AB}$$

$$\Rightarrow \frac{2/5}{8} = \frac{3}{AB} \Rightarrow AB = \frac{48}{5} = 9/6$$

۴ (۲)



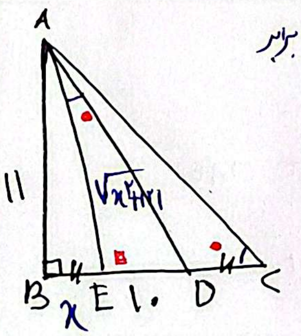
$A\hat{M}F \sim M\hat{C}B \Rightarrow \frac{3}{6} = \frac{x}{3} \Rightarrow \underset{AF}{x} = 1/5$

$FM = \sqrt{9+2/25} = 1/5\sqrt{5}$

$\frac{6}{3} = \frac{MC}{1/5\sqrt{5}} \Rightarrow MC = 3\sqrt{5} \xrightarrow{M\hat{B}E \sim D\hat{C}E} \frac{ME}{3\sqrt{5}} = \frac{3}{9} \Rightarrow ME = \sqrt{5}$

$$\Rightarrow S = \frac{\sqrt{5} \times 1/5\sqrt{5}}{2} = \frac{7/5}{2} = 3/75$$

۵ (۲)

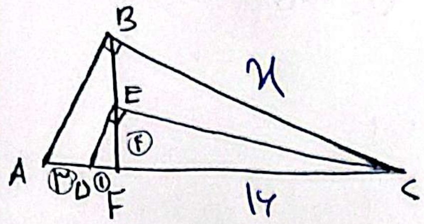
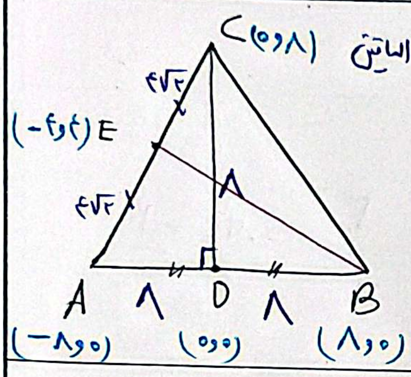
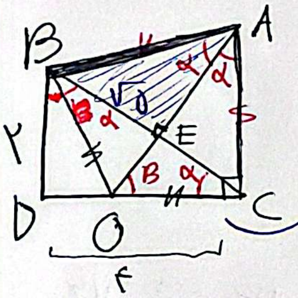
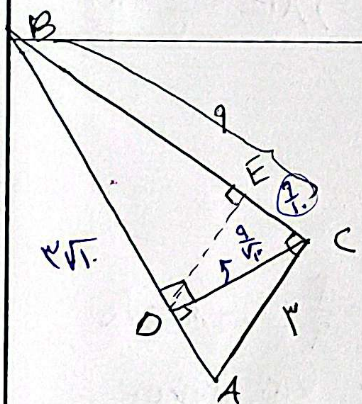
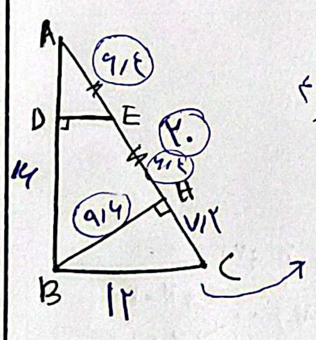


دو زاویه برابر $\Rightarrow AEC \sim AED$

$$\frac{ED}{AE} = \frac{AE}{EC} \Rightarrow \frac{10}{\sqrt{x^2+121}} = \frac{\sqrt{x^2+121}}{10+x}$$

$$\Rightarrow x^2 + 121 = 10x + 100 \Rightarrow x^2 - 10x + 21 = 0$$

$$(x-3)(x-7) = 0 \rightarrow x = 7,\ x = 3$$

	$EF^2 = 1\times FC \to FC = 16$ $BC^2 = FC\times AC \Rightarrow BC^2 = 16\times 20$ $\Rightarrow BC = 4\sqrt{20} = 8\sqrt{5}$	۲	۶
	متساوی الساقین ← میانه ← عمود (نیمساز) $AC = \sqrt{8^2+8^2} = 8\sqrt{2}$ $\Rightarrow AE = EC = 4\sqrt{2}$ $\Rightarrow$ (از روی مختصات) $\Rightarrow BE = \sqrt{12^2+4^2} = \sqrt{160} = 4\sqrt{10}$	۳	۷
	$S_{ABE} = ?$ $BC^2 = 4+16 \Rightarrow BC = 2\sqrt{5} \Rightarrow BE = \sqrt{5}$ $\tan\alpha = \frac{1}{2} \to \frac{\sqrt{5}}{AE} = \frac{1}{2} \Rightarrow AE = 2\sqrt{5}$ $\Rightarrow S = \frac{2\sqrt{5}\times\sqrt{5}}{2} = 5$	۲	۸
	$AB = \sqrt{81+9} = 3\sqrt{10}$ $DC = \frac{3\times 9}{3\sqrt{10}} = \frac{9}{\sqrt{10}}$ $9 = \frac{81}{10} + DA^2 \Rightarrow DA^2 = \frac{9}{10} \Rightarrow DA = \frac{3}{\sqrt{10}}$ $\frac{81}{10} = EC\times 9 \Rightarrow EC = \frac{9}{10} \Rightarrow BE = 9 - \frac{9}{10} = \frac{81}{10} = 8.1$	۲	۹
	$AB^2 + BC^2 = AC^2 \to \sqrt{16^2+12^2} = 20$ $\frac{16\times 12}{2} = \frac{20\times BH}{2} \Rightarrow BH = 9.6$ $12^2 = 9.6^2 + HC^2 \Rightarrow HC = 7.2$; $\frac{20-7.2}{2} = AE \Rightarrow AE = 6.4$ $\frac{DE}{BC} = \frac{AE}{AC} \Rightarrow \frac{DE}{12} = \frac{6.4}{20} \Rightarrow DE = 3.84$	۲	۱۰