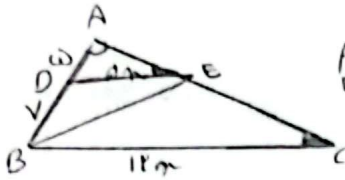
۱۴

نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

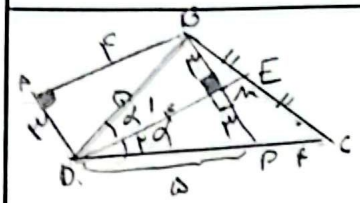
۱



$A=A$, $E=C$ $\vdash ADE \sim ABC \rightarrow \frac{۵}{۱۲}$ ، $\frac{S_{BCE}}{S_{BDC}} = \frac{BC}{DE} = \frac{۱۲m}{۵m}$

$= ۲,۴$

۲

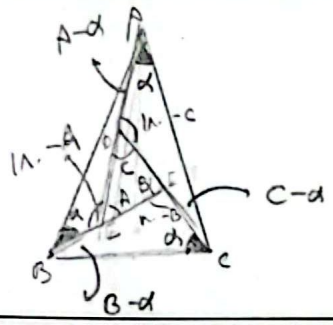


$D_۱ = D_۲ = \alpha \rightarrow DM$ میانه $\rightarrow BM = MP = ۳$

$ME = \frac{PC}{۲} = ۲$

$ABMD$ ~ ذوزنقه متساوی‌الساقین

۳



$ABC \sim DEF$

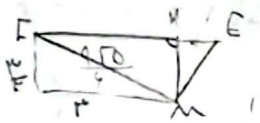
$\frac{۲۰}{۸} = \frac{c}{m} \sim m = ۹,۶$

۴

$AM = MB = ۳$

$AD = DC = CB = BA = ۶$

DB



$\frac{۹}{۴} = \frac{HE \times ۴}{\frac{۱۲}{۴}} \rightarrow FE = \frac{۱۵}{۴}$

$AFM \sim BMP \rightarrow \frac{AF}{BM} = \frac{FM}{ME} = \frac{AM}{BC}$

$S = \frac{۱۵}{۴} \times \frac{۳}{۲} \times \frac{۱}{۲} = \frac{۴۵}{۱۶}$

۵

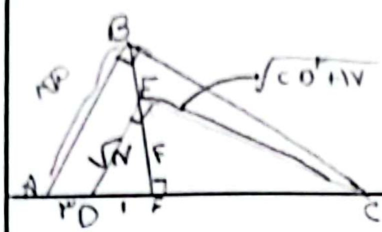
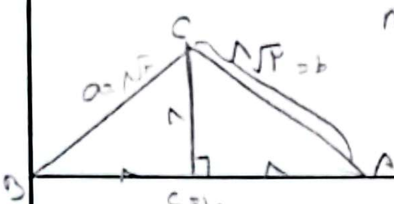
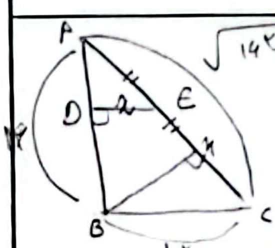
$BE = DC = m \rightarrow BC = ۲m+۱۰$

$ABE \sim ABC \sim ABD \rightarrow \frac{AE}{AC} = \frac{BE}{BC} = \frac{m}{۲m+۱۰}$

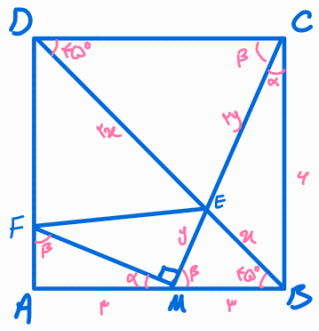
$\frac{AD}{AC} = \frac{BD}{BC} = \frac{m+۱۰}{۲m+۱۰}$

$AD^۲ = AC \times AE \rightarrow \frac{m+۱۰}{۲m+۱۰} = \frac{m(۲m+۱۰)}{(۲m+۱۰)(m+۱۰)}$

$(m-۴)(m-۷) = ۰ \sim m = ۴, ۷$

$ABC \sim CED \Rightarrow \frac{BC}{CE} = \frac{AC}{CD} = \frac{3+DC}{DC}$, $BC = CE \times \frac{3+DC}{DC}$ $BC^2 = \left(\sqrt{CD^2+17} \cdot \frac{3+DC}{DC}\right)$  $BC = 8$	۶
 $m_a = \frac{1}{2}\sqrt{2b^2+2c^2-a^2}$, $a = 8\sqrt{2} = b$, $c = 16$, $\frac{1}{2}\sqrt{2(128)+2(128)-256}$ $= 4\sqrt{10}$	۷
$D = C = 90^\circ$ $BD \parallel AC \rightarrow BD^2 + DC^2 = BC^2 \rightarrow BC = \sqrt{5} \times 2$ $OE \rightarrow OB = OC = \sqrt{5}$ $\frac{AC}{BD} = \frac{\sqrt{5}}{2}$, $h_1 + h_2 = CD = 4 \sim \frac{h_2}{h_1} = \frac{\sqrt{5}}{2} \rightarrow h_2 = \frac{\sqrt{5}}{2} h_1 \rightarrow \frac{8}{2+\sqrt{5}}$ $S_{ABE} = S_{ABD} - S_{AED} = 2\sqrt{5} - (10\sqrt{5} - 20)$	۸
$AC \perp BC$, $BC \perp DE$ $\Rightarrow AC \parallel DE$, $BC - CE = BE = 8.1$ $BC = 9$, $AC = 3 \sim AB = 3\sqrt{10}$ $AC^2 = AD \times AB \rightarrow 9 = AD \times 3\sqrt{10} \sim AD = \frac{3\sqrt{10}}{10}$, $CD = \sqrt{9 - \frac{9}{10}} = \sqrt{8.1} = \frac{9\sqrt{10}}{10}$ $CD^2 = \frac{9 \times 9 \times 1}{10} = CE \times 9 \sim CE = \frac{9}{10}$	۹
 $\sqrt{16^2+12^2} = 20$ $AB \times BC = BH \times AC \rightarrow BH = 9.6$ $\frac{DE}{BH} = \frac{AE}{AB} \sim DE = 3.84$	۱۰

(۱۴



$MC^2 = 4^2 + 3^2 \rightarrow MC = 3\sqrt{5}$

$\tan F = \frac{3}{AF} = \tan M = \frac{BC}{MB} = 2 \rightarrow AF = \frac{3}{2}$

$FM^2 = AF^2 + AM^2 \rightarrow MF = \frac{3\sqrt{5}}{2}$

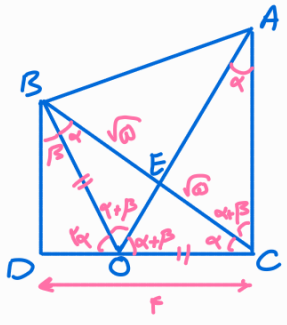
DEC , MEB نسبت تشابه دو مثلث $= \frac{4}{3} = 2 \rightarrow 3y = 3\sqrt{5} \rightarrow y = \sqrt{5}$

$S_{FME} = \frac{1}{2} ME \times MF = \frac{15}{4}$

(۱۴

$EF^2 = DF \times FC \rightarrow FC = 14$ $\quad BC^2 = FC \times AC \rightarrow BC = 8\sqrt{7}$

(۱۸



$2\alpha + \beta = 90^\circ$ $\quad BD^2 + DC^2 = BC^2 \rightarrow BC = 2\sqrt{5} = 2BE = 2EC$

$\rightarrow BE = EC = \sqrt{5}$

$\frac{2}{\sqrt{5}} = \frac{4}{AE} = \frac{4\sqrt{5}}{5} \rightarrow AE = 2\sqrt{5}$

$S_{ABE} = \frac{1}{2} AE \times BE = 5$