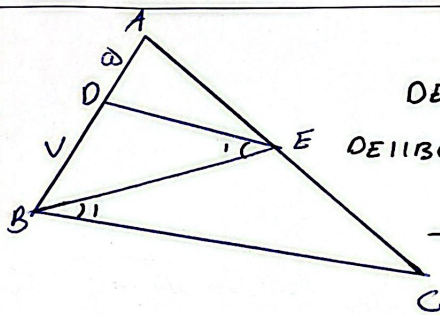




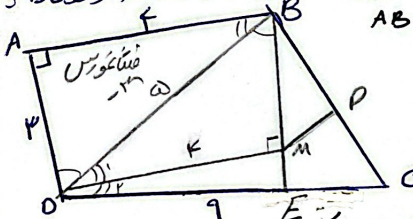
متثلث ABC و $DE \parallel BC$. BCE و BDE کے برابر مساحتیں؟

$$DE \parallel BC, EB / \rightarrow \hat{E}_1 = \hat{B}_1$$

$$DE \parallel BC \xrightarrow{u,v} \frac{DE}{BC} = \frac{AD}{AB} = \frac{AE}{AC} = \frac{2}{12}$$

$$\frac{S_{BCE}}{S_{BDE}} = \frac{\frac{1}{2} \times OE \times BE \times \sin \hat{E}}{\frac{1}{2} \times BC \times BE \times \sin \hat{B}} = \frac{2}{12}$$

مربع $ABCD$ کے اضلاع B و D پر دو نقطہ P و M کے ترتیب میں AD و AB کے برابر M نقطہ $BDC = 2BDM$. P نقطہ M اور BC کے وسط ہے

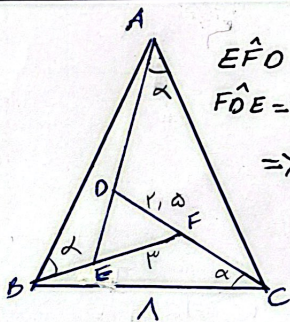


$$AB \parallel DC, BD / \rightarrow \hat{B}_1 = \hat{D}_1 \xrightarrow{u,v} \left. \begin{array}{l} \hat{B} + \hat{D}_1 = \hat{D}_1 \\ AD = BD \\ \hat{B} = \hat{D} = \hat{ADB} = \hat{BDE} \end{array} \right\} \Rightarrow \triangle BDM \cong \triangle BDM \Rightarrow \hat{M} = 90^\circ$$

$$\left. \begin{array}{l} DM \text{ مشترک} \\ \hat{D}_1 = \hat{D}_2 \\ \hat{M} = 90^\circ \end{array} \right\} \triangle BDM \cong \triangle DME \rightarrow DE = \alpha, CE = \beta, ME = BM = \gamma \} \textcircled{1}$$

$$BM = ME \text{ (1) } \hookrightarrow$$

$$EC \parallel MP \xrightarrow{u,v} \frac{BP}{ME} = \frac{PC}{MB} \Rightarrow \frac{MP}{CE} = \frac{BP}{BC} = \frac{BM}{BE} = \frac{1}{\gamma} \rightarrow MP = \frac{1}{\gamma} \times \beta = \textcircled{2}$$

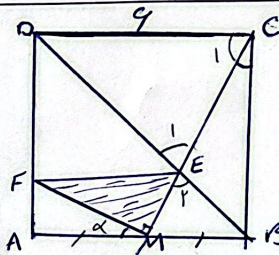


مربع $ABCD$ کے اضلاع AB و BC کے وسط M و N کے ترتیب میں AC و BD کے برابر $ABE = AEF = BCD$

$$\hat{E} \hat{F} \hat{D} \Rightarrow \hat{FBC} \hat{D} \Rightarrow \hat{E} \hat{F} \hat{D} = \hat{\beta} - \alpha + \alpha = \hat{\beta}$$

$$\hat{F} \hat{D} \hat{E} \Rightarrow \hat{ABE} \hat{D} \Rightarrow \hat{F} \hat{D} \hat{E} = \hat{\alpha} - \alpha + \alpha = \hat{\alpha}$$

$$\Rightarrow \triangle ABC \sim \triangle DEF \Rightarrow \frac{1.5}{1} = \frac{1}{AB} \Rightarrow AB = \frac{1.5}{1.5} = 1.4$$



مربع $ABCD$ کے اضلاع AB و BC کے وسط M و N کے ترتیب میں AC و BD کے برابر $ABE = AEF = BCD$

$$MC = 4.5 + 4.5 = 9 \Rightarrow MC = 3\sqrt{2}$$

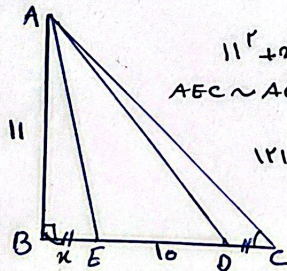
$$DC \parallel AB, CM / \Rightarrow \hat{C}_1 = \hat{M}_1 \left. \begin{array}{l} \hat{C}_1 = \hat{M}_1 \\ \hat{E}_1 = \hat{F}_1 \end{array} \right\} \Rightarrow \frac{DC}{MB} = \frac{CE}{ME}$$

$$\rightarrow \frac{CE}{ME} = \frac{4}{\gamma} = 2 \Rightarrow CE + ME = 3\sqrt{2} \Rightarrow ME = \sqrt{2}$$

$$\left. \begin{array}{l} \hat{C}_1 = \hat{M}_1 = \alpha \\ \hat{E}_1 = \hat{F}_1 = \beta \end{array} \right\} \Rightarrow \triangle CBM \sim \triangle FMA \rightarrow \frac{MB}{AF} = \frac{BC}{AM} = \frac{MC}{MF} \Rightarrow \frac{3\sqrt{2}}{MF} = \frac{4}{\gamma}$$

$$MF = \frac{3}{4}\sqrt{2}$$

$$S_{MFE} = \frac{1}{2} \times \frac{3}{4}\sqrt{2} \times \sqrt{2} = \boxed{1.5}$$



مربع $ABCD$ کے اضلاع AB و BC کے وسط M و N کے ترتیب میں AC و BD کے برابر $ABE = AEF = BCD$

$$11^2 + n^2 = AE^2 \Rightarrow \sqrt{121 + n^2}$$

$$\triangle AEC \sim \triangle ACD \Rightarrow \frac{AE}{EO} = \frac{EC}{AE} \Rightarrow AE^2 = EO \times EC$$

$$121 + n^2 = EO \times EC \Rightarrow 121 + n^2 = 100 + 10n$$

$$n^2 - 10n + 21 = 0$$

$$n = 3$$

$$n = 7$$

$BC = ?$ $DF = 1$ $EF = 7$ $AD = 3$ $\angle ABC = \angle CED = 90^\circ$
 $EF^2 = DF \times FC \rightarrow 14 = 1 \times FC \Rightarrow FC = 14$
 $ED = \sqrt{14+1} = \sqrt{15}$ $14^2 - (\sqrt{15})^2 = EC^2 \rightarrow EC = 4\sqrt{15}$
 $BF^2 = AF \times FC = 7 \times 14 \rightarrow BF = 14$
 $BC^2 = 1^2 + 14^2 = 197 \Rightarrow BC = \sqrt{197}$

در مثلث بزرگتر

در یک مثلث متساوی الساقین با اندازه قاعده ۱۴ و اندازه میانه وار در بر آن نصف قاعده است. اندازه میانه نظیر بر ساق؟
 $x^2 = 1^2 + 14^2 \rightarrow x = \sqrt{197}$
 میانه وار در بر آن نصف قاعده است ← بر ساق هاک با قائم الزامه

$\sqrt{(14\sqrt{2})^2 + (4\sqrt{2})^2} = 4\sqrt{2}$

$\angle ABE$ معلوم $\angle ACB = 90^\circ$, $CD = 7$ $BD = 2$
 F میانه دنیاز میوه نصف

$BC = \sqrt{14+2} = 2\sqrt{5}$ $BE = BC = \sqrt{5}$
 $\frac{7}{\sqrt{5}} = \frac{F}{AE} \Rightarrow AE = 2\sqrt{5}$
 $S_{ABE} = \frac{AE \times BE}{2} = \frac{2\sqrt{5} \times \sqrt{5}}{2} = 5$

$(\angle C = 90^\circ)$ $\angle = BE$ در BC DE $BC = 9$ $AC = 3$

$AB = \sqrt{11+9} = 2\sqrt{10}$
 $(AC)^2 = AD \times AB \Rightarrow 9 = AD \times 2\sqrt{10}$
 $AD = 0,4\sqrt{10}$ $BD = 2\sqrt{10} - 0,4\sqrt{10} = 1,6\sqrt{10}$
 $\left. \begin{matrix} DE \perp BC \\ AC \perp BC \end{matrix} \right\} \Rightarrow DE \parallel AC \rightarrow \frac{BE}{BC} = \frac{BD}{AD}$ $\frac{BE}{9} = \frac{1,6\sqrt{10}}{0,4\sqrt{10}}$
 $\Rightarrow BE = 1,1$

$\angle = DE$ $\angle ABC = 90^\circ$ $BC = 12$ $AB = 14$

$AC = \sqrt{14^2 + 12^2} = 20$
 $BC^2 = CH \times AC \Rightarrow 144 = CH \times 20 \Rightarrow CH = 7,2$
 $AE = AH = 4,4$
 $\frac{DE}{12} = \frac{4,4}{20} \Rightarrow DE = 4,4 \leftarrow$ ABC در ABC