

$$S_{ABE} = \frac{1}{2} \times 10 \times 12 = 60 \quad S_{ABE} = \frac{1}{2} \times 10 \times 12 = 60$$

$$BC = 14$$

$$BC = \sqrt{10}$$

$$BC = \sqrt{10} \quad CE = BE = \sqrt{10} \quad \cos \alpha = \frac{1}{\sqrt{10}}$$

$$\tan \alpha = \frac{1}{\sqrt{10}} = \frac{1}{\sqrt{10}} \rightarrow \cos \alpha = \frac{1}{\sqrt{10}} \quad (19)$$

$$BE = BC \times \frac{BD}{BC} \times \frac{BE}{BD} = 14 \times \frac{1}{10} \times \frac{1}{10} = 1.4$$

$$124 + 124 = 248 \quad (10)$$

$$AC = 10 \quad BC = CH \times AC$$

$$124 = CH \times 10 \rightarrow CH = 12.4$$

$$AH = 14.1 \rightarrow 14.1 = 14.1$$

$$AE = 14.1$$

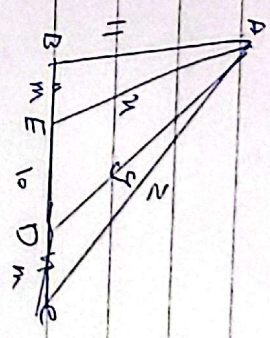
$$\frac{DE}{BC} = \frac{AE}{AC} \quad DE = 14 \times \frac{14.1}{10} = 19.74$$

$$\frac{10}{10+m} = \frac{10}{10} = 1 \rightarrow 10 = 10(1+m)$$

$$10 + m = 10 + 10m \rightarrow m = 10m + 10 = 0$$

$$(m-1)(m-1) = 0$$

$$m = 1, 2$$



$$EF = DF \cdot EC \quad 14 = 14 \cdot EC \rightarrow EC = 1 \quad (14)$$

$$BC = CF \times CA$$

$$BC = 14 \times 10$$

$$BC = 140 \quad \left\{ \begin{array}{l} EF = DF \cdot EC \rightarrow EC = 1 \\ BF = AE \times FC \rightarrow BF = 1 \end{array} \right.$$

$$BC = EF + BF = 1 + 1 = 2$$

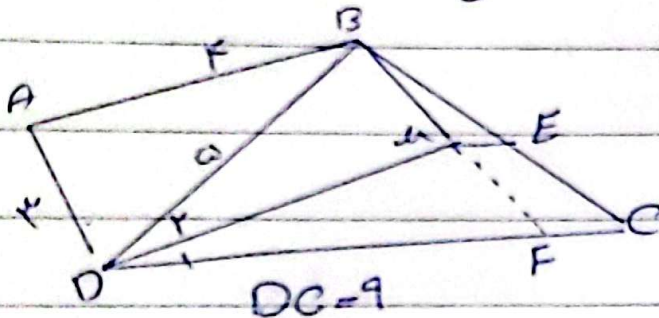
$$14 + 14 = 28 \rightarrow 28 = 14 \rightarrow 28 = 14$$

$$BC = \sqrt{(14)^2 + (14)^2} = \sqrt{392} = 19.79$$

نسبتهای مثلثی

$$(1) \quad \frac{S_{\triangle BCE}}{S_{\triangle BDE}} = \frac{BC}{DE} = \frac{AB}{AD} = \frac{12}{5} = 2,4$$

(2) چون زاویه $A = 90^\circ$ پس $\triangle ABD$ قائمه است و $BD = 5$ و $AD = 4$
 چون $D_1 = D_2$ پس دو مثلث MBD و MEF هم‌بخت هستند پس
 بنابراین $ME = BD = 3$ در نتیجه $DF = 5$ پس $FC = 4$
 در مثل BFC و ME وسط مثلث ABC پس $ME = 2$ قاعده است.



$$(3) \quad \triangle ABC \sim \triangle DEF \quad \frac{1}{2,4} = \frac{AB}{5} \rightarrow AB = \frac{12}{2,4} = \frac{94}{10} = 9,4$$

$$(4) \quad \triangle ABC \sim \triangle AEF \rightarrow \frac{AF}{5} = \frac{3}{4} \rightarrow AF = \frac{15}{4}$$

$$ME = \sqrt{9+9} = \frac{3\sqrt{2}}{2}$$

$$\triangle BEC \sim \triangle ECD$$

$$ME = \sqrt{34+9} = 5\sqrt{2}$$

$$ME + EC = 3\sqrt{2}$$

$$ME + 2ME = 3\sqrt{2} \rightarrow ME = \sqrt{2}$$

$$\frac{3}{4} = \frac{ME}{CE} \rightarrow CE = 2ME$$

$$S_{\triangle MEF} = \frac{FE \cdot ME}{2} =$$

$$\frac{3\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = 1,5$$