

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

$$BC = 14$$

$$CE = BE = 10$$

$$\cos \theta = \frac{1}{2}$$

$$BC = \sqrt{10}$$

$$BC = \sqrt{10} \quad r = \frac{AE}{\sqrt{10}}, \quad AE = r\sqrt{10}$$

$$\tan \alpha = \frac{r}{10} = \frac{1}{10} \rightarrow \cos \alpha = \frac{r}{10}$$

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

$$10 + 12 = 22 \quad AC = 10$$

$$AC = 10$$

$$BC = CH \times AC$$

$$12 = CH \times 10 \rightarrow CH = 1.2$$

$$AH = 12, \quad \rightarrow \quad AE = 12$$

$$AE = 12$$

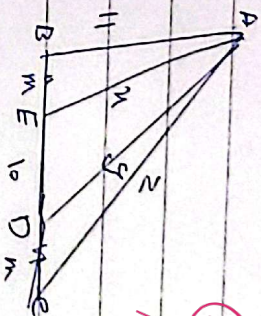
$$\frac{DE}{BC} = \frac{AE}{AC} \quad \rightarrow \quad DE = 12 \times \frac{12}{10} = 14.4$$

$$\frac{m}{10+m} = \frac{y}{2} = \frac{1}{2} \rightarrow y = 10(10+m)$$

$$11 + m = 10 + 10m \rightarrow m = 10m + 11 = 0$$

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

$$m = 1, 2$$



$$EF = DF = EC \quad 14 = 12 \times EC \rightarrow EC = 12$$

$$BC = CF \times CA$$

$$BC = 12 \times 10$$

$$BC = 120$$

$$\begin{cases} EF = DF = EC \rightarrow EC = 12 \\ BF = AE \times FC \rightarrow BF = 12 \end{cases}$$

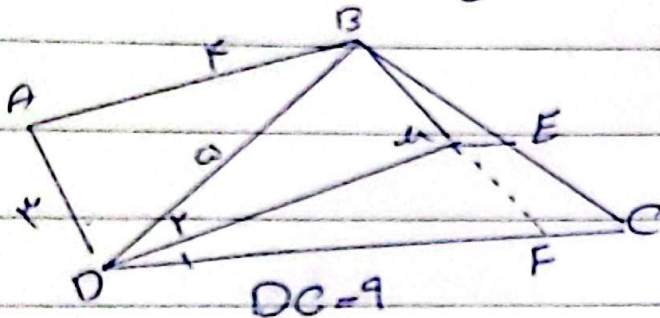
$$BC = EF + BF = 12 + 12 = 24$$

$$x + y = 14 \quad \rightarrow \quad x = 14 - y \quad \rightarrow \quad y = 12$$

$$\text{Perimeter} = \sqrt{(12)^2 + (12)^2} = \sqrt{144 + 144} = 12\sqrt{2}$$

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

(۲) چون زاویه $A = 90^\circ$ پس $\triangle ABD$ قائمه است و $BD = 13$ و $DE = 4$
 چون $D_1 = D_2$ پس دو مثلث MBD و MBF هم‌بخت هستند پس
 بنابراین $BF = BD = 13$ در مثل MBF داریم $DF = 5$ پس $FC = 4$
 در مثل BFC و ME دو مثلث متشابه به هم هستند پس برابرند
 قاعده مثلث $ME = 2$



$$\triangle ABC \sim \triangle DEF \quad \frac{1}{2,4} = \frac{AB}{4} \rightarrow AB = \frac{4 \times 9}{2,4} = 15 \quad (3)$$

$$\triangle ABC \sim \triangle DEF \rightarrow \frac{AF}{4} = \frac{4}{9} \rightarrow AF = \frac{16}{9} \quad (4)$$

$$MF = \sqrt{9 + \frac{16}{9}} = \frac{10}{3}$$

$$\triangle BEF \sim \triangle ECD$$

$$MC = \sqrt{16 + 9} = 5$$

$$ME + EC = 5$$

$$ME + 2ME = 5 \rightarrow ME = \frac{5}{3}$$

$$\frac{4}{9} = \frac{ME}{CE} \rightarrow CE = 2ME$$

$$S_{\triangle BEF} = \frac{BF \cdot ME}{2} =$$

$$\frac{5 \sqrt{5}}{2} \times \frac{\sqrt{5}}{2} = 12,5$$