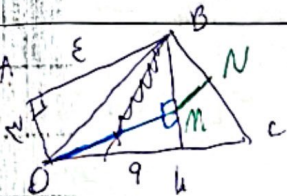


$$\frac{AD}{BE} = \frac{DE}{BC} = \frac{1}{11} \Rightarrow \frac{BC}{DE} = \frac{11}{1}$$

$$\Rightarrow \frac{S_{BCE}}{S_{BDE}} = \frac{BC}{DE} = \frac{11}{1} = 11 \checkmark$$

(۲)

۱



$PM = BM = MC$ $\Rightarrow D_1 = D_2$ $\Rightarrow$ نیمساز زاویه D است
 مثلث BMN و BMC با نسبت ۲ و ۱ متشابه هستند
 $\Rightarrow MN = \frac{1}{2} BC \Rightarrow MN = \frac{11}{2} = 5.5 \checkmark$

(۲)

۲

$AD = BM = 3$
 $AB = DM = 6$ $\Rightarrow$ متشابه است $ABMD$

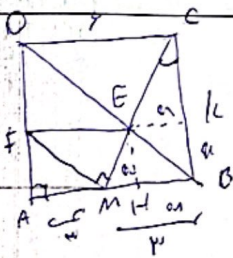
زاویه $EFD = B - \alpha + \alpha = B$
 زاویه $BEF = A - \alpha + \alpha = A$
 زاویه $EDF = C - \alpha + \alpha = C$

$\triangle ABC \cong \triangle DEF \Rightarrow \frac{AD}{BC} = \frac{EF}{AC} \Rightarrow \frac{3}{11} = \frac{EF}{11} \Rightarrow EF = 3 \checkmark$

(۲)

$\triangle ABC \cong \triangle DEF \Rightarrow \frac{AD}{BC} = \frac{EF}{AC} \Rightarrow \frac{3}{11} = \frac{EF}{11} \Rightarrow EF = 3$
 $\triangle ABC \cong \triangle DEF \Rightarrow \frac{AD}{BC} = \frac{EF}{AC} \Rightarrow \frac{3}{11} = \frac{EF}{11} \Rightarrow EF = 3$
 $\triangle ABC \cong \triangle DEF \Rightarrow \frac{AD}{BC} = \frac{EF}{AC} \Rightarrow \frac{3}{11} = \frac{EF}{11} \Rightarrow EF = 3$

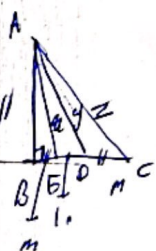
۳



$\triangle BCM \cong \triangle AMF \Rightarrow \frac{BM}{AF} = \frac{BC}{AM} \Rightarrow \frac{3}{AF} = \frac{1}{2} \Rightarrow AF = 6$
 $\Rightarrow MF^2 = AM^2 + AF^2 \Rightarrow MF^2 = 3^2 + 6^2 = 45 \Rightarrow MF = 3\sqrt{5}$
 $\Rightarrow MF = \frac{3}{2}\sqrt{5}$
 $\Rightarrow EH \parallel MB \Rightarrow \frac{CH}{BC} = \frac{EH}{MB} \Rightarrow \frac{4-M}{4} = \frac{M}{3} \Rightarrow 4-M = \frac{4M}{3} \Rightarrow 12-3M = 4M \Rightarrow 12 = 7M \Rightarrow M = \frac{12}{7}$
 $\Rightarrow MH = 3-M \Rightarrow 3-\frac{12}{7} = \frac{9}{7}$
 $\Rightarrow S_{EFM} = \frac{1}{2} MF \cdot ME = \frac{1}{2} \cdot \frac{3}{2}\sqrt{5} \cdot \frac{9}{7} = \frac{27\sqrt{5}}{28} \checkmark$

(۲)

۴



$\frac{11}{10+m} = \frac{4}{2} = \frac{6}{m} \Rightarrow 11m = 6(10+m) \Rightarrow 11m = 60 + 6m \Rightarrow 5m = 60 \Rightarrow m = 12$
 $\Rightarrow (m-10)(m-12) = 0 \Rightarrow m = 12 \checkmark$

(۲)

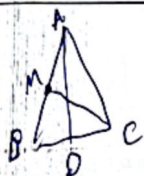
۵

$$Ef^Y = Of \times fC \Rightarrow 14 \leq 14fC \Rightarrow fC \leq 14$$

$$\Rightarrow BC^Y = CF \propto CA = 14 \propto (14+E) = 14 \propto 10 \Rightarrow BC = E\sqrt{10} \Rightarrow E \propto \sqrt{10} = \sqrt{10}$$

⑦

8



$$pD \leq pC \leq n$$

$$BD \leq DC = 1 \Rightarrow \hat{D} = 90^\circ \Rightarrow AB = \sqrt{1^2 + 1^2} = \sqrt{2}$$

$$\Rightarrow AB = AC = \sqrt{4}$$

$$AM = MB = EP$$

$\beta(-190)$

$$c(M^0)$$

Alc, n!

$$\Rightarrow M = (-\varepsilon, \varepsilon)$$

$$CM = \sqrt{(LA - (-E))^2 + (-E)^2}$$

$$\Rightarrow CM = \varepsilon \sqrt{G} \quad \checkmark$$

از ایش بعضیهای میروم

②

Y

علائق BOC و COA قائم‌الزاویه است و درایای برابر را می‌بینیم. OE میان و نیمه‌اردمند و منصف است و $DBO = \beta$ پس $\beta + \beta = 90^\circ$

$$BC = \sqrt{y^2 + \varepsilon^2} = y\sqrt{\omega} = yBE \leq yEC \Rightarrow BE = EC = \sqrt{\omega}$$

$$\Rightarrow \frac{V}{V_0} = \frac{E}{AG} = \frac{V\sqrt{\omega}}{\omega} \Rightarrow AE = V\sqrt{\omega} \Rightarrow \delta_{ABE} = \frac{AE \cdot EC}{V} \Rightarrow \frac{V\sqrt{\omega} \cdot \sqrt{\omega}}{V} = \omega \quad \checkmark$$

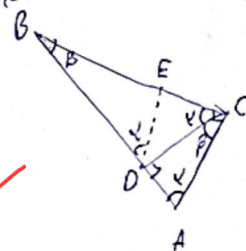
②

人

$$ABC \sim \sqrt{10}$$

$$BCD = CD \quad \boxed{BD} \quad 9 \Rightarrow BD = \frac{9 \times 9}{\sqrt{10}} \Rightarrow \frac{81}{\sqrt{10}}$$

$$BDE = DE \quad BE \quad \boxed{BD} \Rightarrow BE = \frac{vU}{v_0} \sqrt{1 - \frac{v^2}{c^2}} \Rightarrow \frac{vU}{v_0} = 1/1 \quad \checkmark$$



(2)

9

$$AC = \sqrt{AB^2 + BC^2} \Rightarrow \sqrt{14^2 + 1^2} \Rightarrow \sqrt{196 + 1} \Rightarrow \sqrt{197} \Rightarrow \sqrt{197} = Y_0 \Rightarrow AB^2 = AH^2 + HC^2$$

$$\Rightarrow (4)^y = A H (2)^y \Rightarrow A H = \frac{(4)^y}{(2)^y} \Rightarrow A H = 1^y / 1$$

$$AE = EH \Rightarrow AE = \frac{1}{2} AH = \frac{1}{2} \cdot 4\sqrt{2} \Rightarrow DE \parallel BC \Rightarrow \frac{DE}{BC} = \frac{AE}{AC} \Rightarrow \frac{DE}{TP} = \frac{4\sqrt{2}}{8}$$

$$\Rightarrow DE = \frac{124418}{p_0} \Rightarrow DE = \frac{44418}{1_0} \Rightarrow DE = 44418 \checkmark$$

②

1.