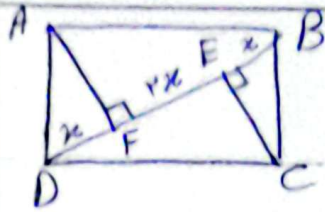
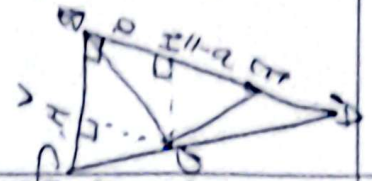


$$BD \text{ : } \Rightarrow DH = DH' = BH = BH' = a \Rightarrow EH = 11 - a$$

$$\Rightarrow DH' = BH \cdot EH = a \times (11 - a) = a^r \Rightarrow 11a^r = 11a \Rightarrow a = \frac{11}{r} = \Delta, \Delta \quad (r)$$

$$\triangle ADH \sim \triangle ABC \Rightarrow \frac{AH}{AB} = \frac{DH}{BC} \Rightarrow \frac{\Delta, \Delta}{r, \Delta} = \frac{AH}{\Delta, \Delta} \Rightarrow 10, 1 \Delta = r, \Delta AH$$

$$\Rightarrow AH = 10, 1, AE = 10, 1 - \Delta, \Delta = 4, 4 \quad \checkmark$$

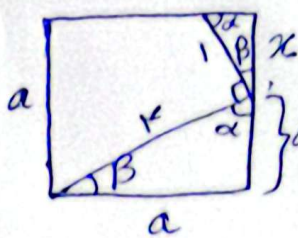
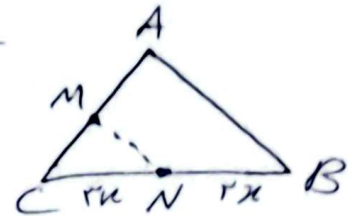


$$BEC \sim BDC \Rightarrow \left. \begin{array}{l} CE = CE \\ BE = \frac{1}{r} BD \end{array} \right\} \frac{S_{BEC}}{S_{BDC}} = \frac{1}{r} \quad (r)$$

$$\Rightarrow \frac{S_{BEC}}{S_{ABCD}} = \frac{1}{r} \times \frac{1}{r} = \frac{1}{r} \xrightarrow{\text{نسبة}} 1 \quad \checkmark$$

$$\frac{S_{BMN}}{S_{ABC}} = \frac{BM \times BN}{BA \times BC} = \frac{BM}{AB} \times \frac{1}{r} = \frac{1}{r}$$

$$\Rightarrow \frac{BM}{AB} = \frac{\Delta}{9} \Rightarrow \frac{BM}{AM} = \frac{\Delta}{r} \quad \checkmark$$



$$\frac{y}{a-x} = \frac{x}{a} = \frac{1}{r} \rightarrow a = rx$$

$$a^r + (a-x)^r = 19 \Rightarrow 19x^r + 9x^r = 19$$

$$\Rightarrow x^r = \frac{19}{18} \Rightarrow x = \frac{r}{\Delta}$$

$$\Rightarrow a = rx = \frac{19}{\Delta} \Rightarrow S_{\text{مربع}} = \left(\frac{19}{\Delta}\right)^r = \frac{r \Delta^r}{r \Delta} \quad \checkmark$$

$$\triangle GDC: EM \parallel GD \xrightarrow{\text{نسبة}} \frac{EC}{EG} = \frac{CM}{DM} \Rightarrow CM = DM = x \Rightarrow AD = 12x$$

$$\triangle AEM: FD \parallel EM \xrightarrow{\text{نسبة}} \frac{AD}{AM} = \frac{FD}{EM} \Rightarrow \frac{12x}{rx} = \frac{FD}{EM} \Rightarrow EM = \frac{r}{r} FD \quad (1) \quad (r)$$

$$\triangle GDC: EM \parallel DG \xrightarrow{\text{نسبة}} \frac{CM}{CD} = \frac{EM}{GD} \Rightarrow GD = r EM \xrightarrow{(1)} GD = r FD$$

$$\frac{GD}{BD} = \frac{1}{r} \Rightarrow \frac{r FD}{BD} \Rightarrow \frac{FD}{BD} = \frac{1}{9} \rightarrow \frac{BD}{FD} = 9 \quad \checkmark$$

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۲۰۰۰ کلاس: یازدهم چهارم

$$\frac{AF}{CF} = \frac{EF}{BF} = \frac{AE}{BC} = \frac{1}{3}$$

$$\left. \begin{array}{l} AF=x \Rightarrow x+3x=3\sqrt{2} \Rightarrow x=\frac{3}{4}\sqrt{2} \\ EF=y \Rightarrow y+3y=\sqrt{10} \Rightarrow y=\frac{\sqrt{10}}{4} \end{array} \right\} \frac{x}{y} = \frac{\frac{3}{4}\sqrt{2}}{\frac{\sqrt{10}}{4}} = \frac{\sqrt{2}}{\sqrt{10}} = \frac{\sqrt{5}}{5}$$

$$\hat{AED} = \hat{ACB} \Rightarrow \frac{AD}{AB} = \frac{AE}{AC} \Rightarrow \frac{y}{x+1} = \frac{x}{10} \Rightarrow x^2 + x - 10 = 0$$

$$\rightarrow \frac{-1 \pm \sqrt{1+40}}{2} = \frac{-1 \pm 7}{2} = 3 \quad \checkmark$$

$$\rightarrow \frac{-1 - \sqrt{41}}{2} = -4 \times 6 \quad \checkmark$$

$$DE \parallel BC \Rightarrow \hat{AED} \sim \hat{ABC} \quad 3y = 5x \Rightarrow x = \frac{3}{5}y$$

$$\hat{DEH} \sim \hat{FHC} \Rightarrow \frac{x}{\frac{5}{3}x} = \frac{DE}{FC} \Rightarrow FC = \frac{5}{3}DE$$

$$\frac{x}{3x} = \frac{DE}{BC} \Rightarrow \frac{DE}{\frac{5}{3}DE + 3} = \frac{1}{3} \Rightarrow \frac{3}{5}DE = 3 \Rightarrow DE = \frac{5}{2}$$

$$BC = \frac{5}{2} \times \frac{5}{3} + 3 = \frac{25}{6} + 3 = \frac{43}{6} \quad \checkmark$$

$$HC = 4: \text{فرض} \Rightarrow BH = 10 - 4 = 6$$

$$AB^2 = 16 \times 10 = 160 \Rightarrow AB = \sqrt{160} = 4\sqrt{10}$$

$$AC^2 = 4 \times 10 = 40 \Rightarrow AC = \sqrt{40} = 2\sqrt{10}$$

$$\frac{AC}{AB} = \frac{2\sqrt{10}}{4\sqrt{10}} = \frac{1}{2} \quad \checkmark$$

$$\hat{BAF} \sim \hat{ECF} \rightarrow \frac{BF}{EF} = \frac{AF}{CF} \Rightarrow \frac{4}{x} = \frac{1+x}{1} \rightarrow x(x+1) = 4$$

$$\Rightarrow x = 2 \Rightarrow AF = 1 + x = 3 \quad \checkmark$$