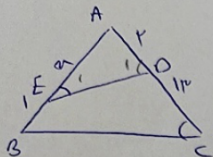


$$BE^2 = m^2 + m^2 \rightarrow BE = m\sqrt{2}$$

$$\frac{AE}{BE} = \frac{EF}{BF} = \frac{EF}{\frac{BE}{\sqrt{2}}} = \frac{1}{\sqrt{2}} \rightarrow EF = \frac{m\sqrt{2}}{\sqrt{2}} = m$$

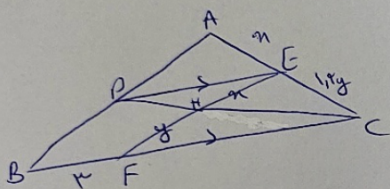
$$\frac{EF}{AF} = \frac{\frac{m\sqrt{2}}{\sqrt{2}}}{\frac{m\sqrt{2}}{\sqrt{2}}} = \frac{1}{\sqrt{2}}$$

$$(m\sqrt{2})^2 + (m\sqrt{2})^2 = AC^2 \rightarrow AC = 2m \rightarrow \frac{AE}{AC} = \frac{AF}{FC} \rightarrow \frac{1}{2} = \frac{AF}{AC} \rightarrow AF = \frac{AC}{2} = m$$



$$\hat{A} = \hat{A} \rightarrow \hat{E} = \hat{C} \rightarrow \hat{D} = \hat{B} \rightarrow \triangle ADE \sim \triangle ABC \rightarrow \frac{AD}{AB} = \frac{AE}{AC}$$

$$\frac{y}{m+1} = \frac{m}{12} \rightarrow y = \frac{m(m+1)}{12}$$



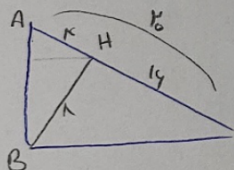
$$y = \frac{m}{2} \rightarrow BC = ?$$

$$\frac{DE}{BC} = \frac{m}{12y+m} = \frac{m}{12 \times \frac{m}{2} + m} = \frac{1}{7} = \frac{DE}{7+FC} \rightarrow FC = \frac{6}{7} DE$$

$$\frac{DE}{FC} = \frac{m}{y + \frac{m}{2}} = \frac{1}{2} = \frac{DE}{FC} \rightarrow FC = \frac{1}{2} DE$$

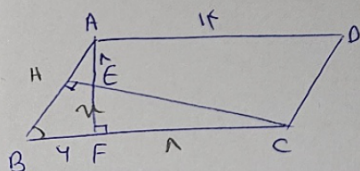
$$7DE = 7 + \frac{1}{2} DE \rightarrow \frac{13}{2} DE = 7 \rightarrow DE = \frac{14}{13}$$

$$BC = \frac{14}{13} + \frac{14}{13} = \frac{28}{13} \leftarrow FC = \frac{1}{2} \times \frac{14}{13} = \frac{7}{13} \leftarrow DE = \frac{14}{13}$$



$$\frac{AB}{BC} = \frac{\sqrt{1^2 + 2^2}}{\sqrt{1^2 + 4^2}} = \frac{\sqrt{5}}{\sqrt{17}} = \frac{1}{\sqrt{17}}$$

$$BH^2 = 1 \times 4 \rightarrow BH = 2$$



$$AF = ?$$

$$\hat{A} = \hat{A} \rightarrow \hat{H} = \hat{F} = 90^\circ \rightarrow \triangle AFB \sim \triangle CHD \rightarrow \frac{AF}{CH} = \frac{FB}{HD} = \frac{AB}{CD} = \frac{12}{12} = 1$$

$$\hat{F} = \hat{H} = 90^\circ \rightarrow \triangle CFE \sim \triangle CHD \rightarrow \frac{CF}{CH} = \frac{CE}{CD} = \frac{FE}{HD}$$

$$\frac{1}{CH} = \frac{CH \times 4}{12 + m}$$

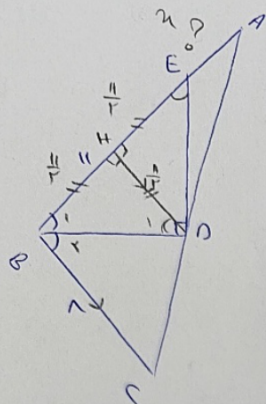
$$\frac{CH}{12} = \frac{BH}{m} \rightarrow CH = \frac{12BH}{m}$$

$$\frac{1}{12} = \frac{4}{m(12+m)}$$

$$m^2 + 12m - 48 = 0$$

$$(m+16)(m-3) = 0$$

$$m = 3 \rightarrow AF = 12 + 3 = 15$$



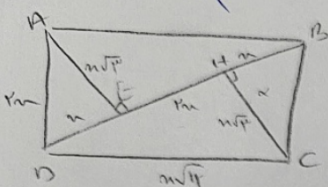
$$\hat{D}_1 = \hat{B}_1 \rightarrow \hat{D}_1 + \hat{B}_1 = 90^\circ \rightarrow \hat{D}_1 = \hat{B}_1 = \hat{\epsilon} \hat{\delta} = \hat{B}_r$$

$$\frac{DH}{DC} = \frac{AH}{AB} = \frac{r + \frac{11}{r}}{n + 11} = \frac{\frac{11}{r}}{11} = \frac{11}{14}$$

$$11n + 11 = 11n + 11$$

$$2n = 22$$

$$n = \frac{22}{2} = 11$$



$$AE^2 = n \times r = r \times n \rightarrow AE = \sqrt{nr}$$

$$AD^2 = r \times r + n \times n = \epsilon n^2 \rightarrow AD = \sqrt{\epsilon} n$$

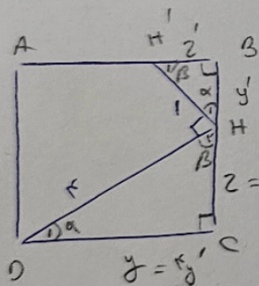
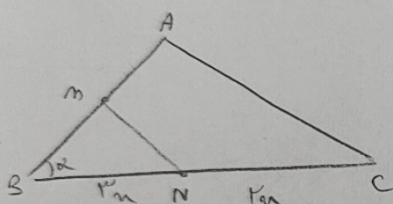
$$DC^2 = 9n^2 + r^2 = 14n^2 \rightarrow DC = \sqrt{14} n$$

$$\frac{S_{BHC}}{S_{ABCO}} = \frac{\frac{1}{2} \times \frac{11}{r} \times \frac{11}{r}}{\frac{1}{2} \times \frac{11}{r} \times \frac{11}{r}} \times \left[\frac{1}{11} \right]$$

$$\rightarrow \frac{S_{ABCO}}{S_{ABCO}} = 1$$

$$\frac{S_{AMN}}{S_{ABC}} = \frac{\frac{1}{2} \times \frac{11}{r} \times \frac{11}{r} \times \sin \alpha}{\frac{1}{2} \times \frac{11}{r} \times \frac{11}{r} \times \sin \alpha} = \frac{1}{r} = \frac{BM}{AB} = \frac{1}{r} \times \frac{a}{r} = \frac{a}{r}$$

$$\frac{BM}{AB - BM} = \frac{a}{\epsilon} = \frac{BM}{AM}$$



$$\alpha + \beta + 90^\circ = 180^\circ \rightarrow \alpha + \beta = 90^\circ$$

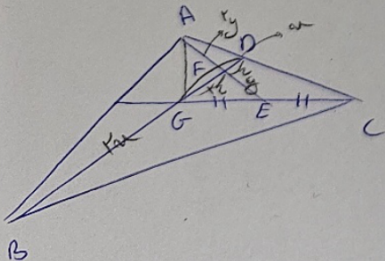
$$\left\{ \begin{array}{l} \hat{H}_1 = \hat{D}_1 \\ \hat{H}_1 = \hat{B}_r \\ \hat{B} = \hat{C} = 90^\circ \end{array} \right\} \rightarrow \Delta CH \sim \Delta BH$$

$$\rightarrow \frac{CH}{BH} = \frac{BH}{CH} = \frac{CH}{CH}$$

$$BC = DC = \epsilon y' = y' + \epsilon z' \quad r y' = \epsilon z' \rightarrow y' = \frac{\epsilon}{r} z'$$

$$(2) (y')^2 = 1 \rightarrow z'^2 + \frac{11}{a} z' = \frac{11}{a} z' = 1 \quad z' = \frac{r}{a} \rightarrow y' = \frac{r}{a} \rightarrow y = \frac{11}{a}$$

$$S = \frac{11}{a} \times \frac{11}{a} = \frac{121}{a^2}$$



$$r z + z = n = r z$$

$$\Rightarrow BG = r m = 12$$

المثلثات المتشابهة (المثلثات المتشابهة) هي التي يكون لها زوايا متساوية وأضلاع متناسبة.

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$$\frac{BD}{FD} = \frac{92}{2} = 46$$