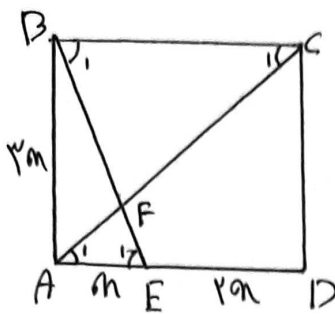




$ED = 2AE \Rightarrow AE = m \Rightarrow BC = AD = 3m$ $AF + CF = 2m\sqrt{2}$
 $AC = 3m\sqrt{2} \Rightarrow \frac{AE}{BC} = \frac{BF}{CF} = \frac{AF}{CF} = \frac{1}{2} \Rightarrow 2m\sqrt{2} = AF$
 $C_1 = A_1$
 $B_1 = E_1$
 $\Rightarrow BCF \sim EAF$
 $BE = \sqrt{(2m)^2 + m^2} = \sqrt{5}m$
 $\frac{EF}{AF} = \frac{\sqrt{10}m}{2m\sqrt{2}} = \frac{\sqrt{5}}{2} \Rightarrow \sqrt{10}m = 2\sqrt{5}m = BE$

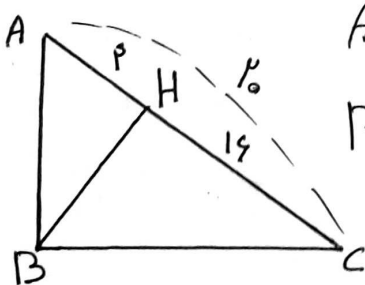
$\hat{A}ED = \hat{ACB}$
 $\hat{A} = \hat{A}$
 $\Rightarrow \triangle ADE \sim \triangle ABC \Rightarrow \frac{AD}{AB} = \frac{AE}{AC} \Rightarrow \frac{3}{m+1} = \frac{m}{10}$

$\Rightarrow m^2 + m = 3 \Rightarrow m^2 + m - 3 = 0 \quad (m-1)(m+3) = 0$

$m = 1 \Rightarrow X$

$y = \frac{10}{3}m \Rightarrow DE \parallel BC \Rightarrow \frac{AE}{AC} = \frac{DE}{BC} \Rightarrow \frac{m}{3m} = \frac{DE}{3m} \Rightarrow DE = m$
 $EC = \frac{10}{3}m \times \frac{2}{3} = \frac{20}{9}m \Rightarrow AC = 3m$
 $DE = 3 + \frac{10}{3}DE \Rightarrow \frac{1}{3}DE = 3 \Rightarrow DE = 9$

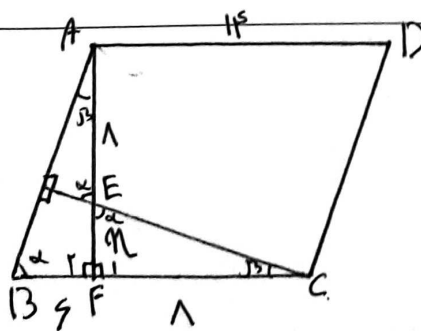
$E_1 = F_1$
 $D_1 = C_1$
 $\Rightarrow \triangle DHE \sim \triangle CHF \Rightarrow \frac{FH}{EH} = \frac{FC}{DE} = \frac{\frac{10}{3}m}{m} = \frac{10}{3} \Rightarrow FC = \frac{10}{3}DE$



$AB^2 = AH \times AC \Rightarrow 8 \times 20 = (PB)^2$

$BC^2 = CH \times AC \Rightarrow 16 \times 20 = (CB)^2$

$AB = \sqrt{160}$
 $CB = \sqrt{320} \Rightarrow \frac{AB}{CB} = \frac{\sqrt{160}}{\sqrt{320}} = \frac{1}{\sqrt{2}}$

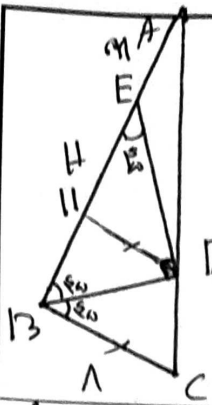


$AB = \sqrt{(1+m)^2 + 2^2}$
 $EC = \sqrt{m^2 + 2^2}$

$F_1 = F_2 = 90^\circ$
 $\alpha = \alpha$
 $B = E_1$
 $C = A$
 $B = B$
 $\Rightarrow \triangle ABF \sim \triangle CFE$
 $\Rightarrow \frac{AB}{EC} = \frac{AF}{FC} = \frac{BF}{FE}$

$\Rightarrow \frac{\sqrt{(1+m)^2 + 2^2}}{\sqrt{m^2 + 2^2}} = \frac{1+m}{2} \Rightarrow m^2 + 1m - 5 = 0 \Rightarrow (m-1)(m+5) = 0$

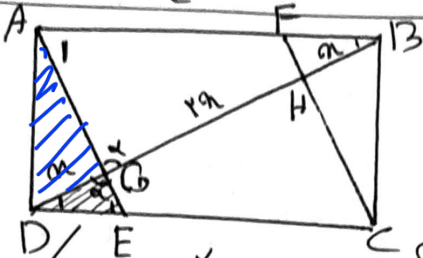
$m = 1 \Rightarrow 1+5 = 6$



BD → ...
 $\Rightarrow$...
 $DH = \frac{11}{2}$
 $EH = BH = \frac{11}{2}$ چون ...

...
 $\Rightarrow \frac{AH}{AB} = \frac{HD}{BC} \Rightarrow \frac{11+n}{11+n} = \frac{11}{11} \Rightarrow 11+n = 11 \Rightarrow n = 0$

$\Rightarrow n = 5, 5$ ✓



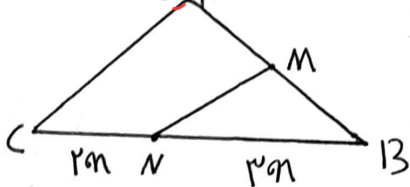
$AB^2 = n \times 1 \Rightarrow AB = \sqrt{n}$

$AD = \sqrt{n^2 + (\sqrt{n})^2} = \sqrt{2n}$ $AB = \sqrt{(\sqrt{n})^2 + (1-n)^2} = \sqrt{1-n}$

$S_{\text{rectangle}} = 1 \times \sqrt{2n} = \sqrt{2n}$

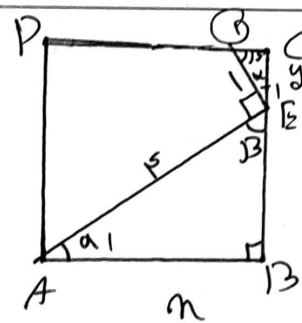
$\Rightarrow BE = \frac{\sqrt{2n}}{\sqrt{1-n}} \Rightarrow \dots$

$\Rightarrow \frac{DE}{AB} = \frac{AF}{AE} = \frac{DB}{DA}$

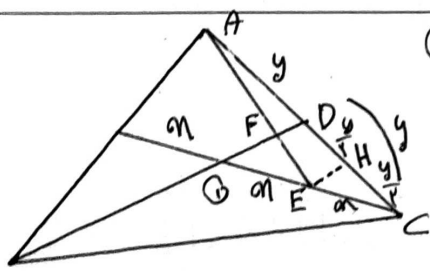


$S_{ABC} = \frac{1}{2} AB \times BC \times \sin \angle B$
 $S_{BNC} = \frac{1}{2} BN \times BC \times \sin \angle B$
 $\Rightarrow \frac{1}{2} AB \times BC \times \sin \angle B = \frac{1}{2} BN \times BC \times \sin \angle B$
 $\Rightarrow AB = BN = 1$

$\Rightarrow \frac{BM}{AM+MB} = \frac{1}{2} \Rightarrow \frac{BM}{AM+BM+BM} = \frac{1}{2} \Rightarrow \frac{BM}{AM+3BM} = \frac{1}{2}$



$\Rightarrow \frac{AB}{CE} = \frac{AF}{BE} \Rightarrow \frac{1}{y} = \frac{1}{1} \Rightarrow y = 1$
 $\Rightarrow n = \frac{1}{2} \times 1 = \frac{1}{2}$



$\frac{FD}{EH} = \frac{y}{1} = \frac{1}{2}$ $\frac{EH}{DB} = \frac{n}{1-n} = \frac{1}{2}$

$\Rightarrow \frac{FD}{EH} = \frac{1}{2} \Rightarrow \frac{FD}{DB} = \frac{1}{2} \Rightarrow \frac{FD}{BD} = \frac{1}{2} \Rightarrow \frac{BD}{FD} = 2$

$$\triangle ABD = h^r = n \times \sqrt{3}n \rightarrow h = \sqrt{3}n$$

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$$S_{\triangle \text{ هاضمه حفره}} = \frac{hn}{2} = \frac{\sqrt{3}n^2}{2}$$

$$S_{\square} = 2S_{\triangle ABD} = 2 \times \frac{\sqrt{3}n \times \sqrt{3}n}{2} = 4\sqrt{3}n^2 \left\{ \frac{4\sqrt{3}n^2}{\frac{\sqrt{3}n^2}{2}} = \boxed{8} \right.$$