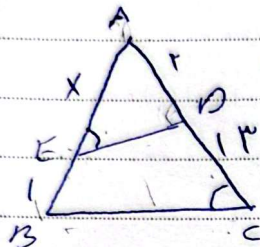


سوال ۱: $\triangle BEF \sim \triangle AFE \rightarrow \frac{BF}{FE} = \frac{BE}{AE} = \frac{FC}{AF} = 2$
 $BF = 2x$ $FC = 2y$

$\triangle BAE \rightarrow BE^2 = AE^2 + AB^2 \rightarrow BE^2 = 9m^2 + n^2$
 $\triangle CAE \rightarrow CE^2 = AE^2 + AC^2 \rightarrow CE^2 = 9m^2 + 9n^2 = 9(m^2 + n^2) = 9BE^2$
 $BE = \sqrt{10}m$ $CE = 3\sqrt{10}m$ $AC = 4\sqrt{10}m$
 $AE = \sqrt{10}m$ $EC = 3\sqrt{10}m$ $AC = 4\sqrt{10}m$



$\angle EDC = \angle ACB$

$\angle E = \angle C$
 $\angle A = \angle A$

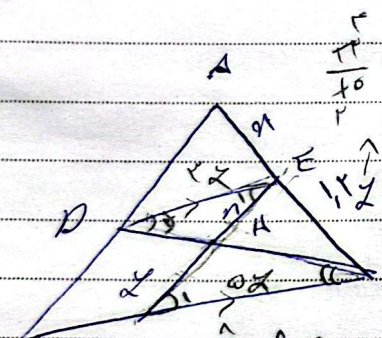
$\triangle EDC \sim \triangle ACB$

$\frac{AE}{AC} = \frac{AD}{AB} = \frac{ED}{CB}$

$m^2 + n = 20 \rightarrow m^2 + n - 20 = 0$

$(m+4)(m-4) = 0$

$m = -4$ $m = 4$
 غلط صحیح



$\frac{1}{4} = \frac{x}{y} = \frac{z}{w}$

$DE \parallel BC$

$DE = 1$ $BC = 4$

$BE = 2$

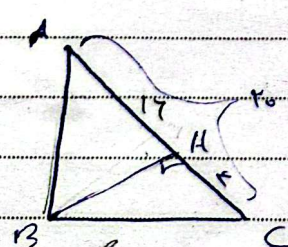
$BC = 4 + \frac{1}{2} = \frac{9}{2}$

سوال ۳: $\frac{DE}{BC} = \frac{AE}{AC} = \frac{AD}{AB} = \frac{1}{4}$

$\angle D = \angle C$
 $\angle E = \angle F$

$\triangle HAC \sim \triangle EAD$

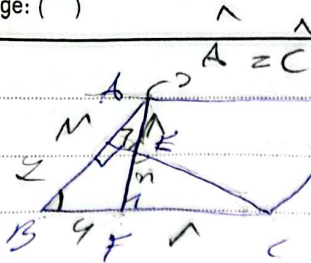
$\frac{EH}{EA} = \frac{HC}{AD} = \frac{EC}{ED} = \frac{1}{2}$



$AB^2 = AH \times AC \rightarrow AB^2 = 14 \times 20$

$BC^2 = CH \times AC \rightarrow BC^2 = 10 \times 20$

$\frac{AB^2}{BC^2} = \frac{14 \times 20}{10 \times 20} = \frac{AB}{BC} = 2$



$$AD = 1^{\circ} = BC$$

$$BF = 4$$

$$AE = 1$$

$$\triangle AFB \sim \triangle FCE$$

$$AF = ? \rightarrow AE = 1, CE = 1^{\circ}$$

$$\frac{AF}{CE} = \frac{AB}{CB} = \frac{FB}{FE} \rightarrow \frac{1}{1} = \frac{AB}{CB} = \frac{FB}{FE}$$

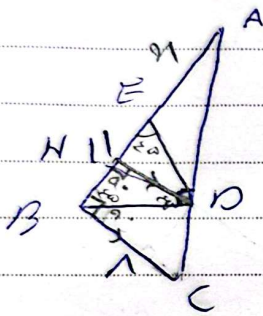
$$\frac{1}{1+1} = \frac{n}{7} \rightarrow 1n + n^2 = 7$$

$$n^2 + n - 7 = 0$$

$$(n+1)(n-7)$$

$$n = 7$$

سوال 5
??



BD خط

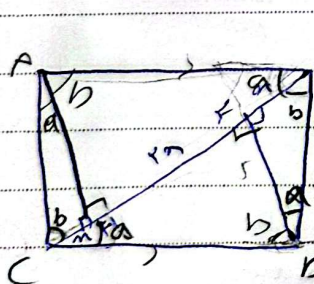
DH || BC $\rightarrow \hat{B} = 90^{\circ}$

AE? BH = 4, HE = 4

$$\frac{AH}{AB} = \frac{DH}{BC} = \frac{AD}{AC} \rightarrow \frac{n+4}{n+11} = \frac{4}{1}$$

$$4(n+4) = n+11 \rightarrow 4n+16 = n+11 \rightarrow 3n = -5 \rightarrow n = -\frac{5}{3}$$

سوال 6



$$BD^2 = n^2 + 3n^2 \rightarrow BD = 2n$$

$$\triangle AEC \sim \triangle FDB \rightarrow FD = 2H$$

$$\tan 45^{\circ} = \frac{n}{FD} = \frac{FD}{2n} \rightarrow FD^2 = 2n^2 \rightarrow FD = \sqrt{2}n$$

$$CD^2 = 9n^2 + 3n^2 = 12n^2 \rightarrow CD = 2\sqrt{3}n$$

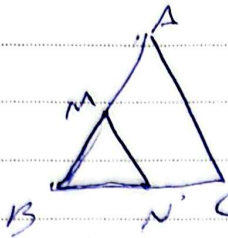
$$\frac{S_{ABCD}}{S_{DBF}} = \frac{2n \times 2\sqrt{3}n}{\frac{1}{2} \times \sqrt{2}n \times n} = \frac{4\sqrt{3}n^2}{\frac{\sqrt{2}}{2}n^2} = \frac{4\sqrt{3}}{\frac{\sqrt{2}}{2}} = 4\sqrt{6}$$

سوال 7

5

Arman

$$\frac{3}{4} NC = BN \quad BC = \frac{3}{4} NC + \frac{3}{4} NC = \frac{3}{2} NC \quad \text{Page: ()}$$



$$BN = NC \quad \frac{BM}{AM} = ?$$

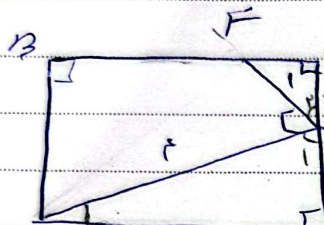
$$S_{ABC} = 4 S_{BMN}$$

$$\frac{\frac{1}{2} \times BN \times BM \times \sin B}{\frac{1}{2} \times BC \times AB \times \sin B} = \frac{1}{4}$$

$$BC \times AB = 4 \times BN \times BM$$

$$\frac{3}{2} NC \times AB = 4 \times \frac{3}{4} NC \times BM \rightarrow AB = 4 BM$$

$$\frac{BM}{AB} = \frac{1}{4} \rightarrow \frac{BM}{AM} = \frac{1}{3}$$



$$\left. \begin{array}{l} M_1 + M_2 = 90 \\ M_1 + C = 90 \end{array} \right\} M_2 = C$$

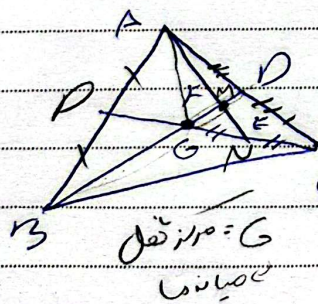
$$M_1 DC \sim F \hat{A} M \rightarrow \frac{MD}{FA} = \frac{MC}{MF} = \frac{DE}{AM} = \frac{1}{2}$$

$$14 \times \frac{1}{2} + 9 \times \frac{1}{2} = 14 \rightarrow 14 \times \frac{1}{2} = 14$$

$$2x = 14 \rightarrow x = 7$$

$$(2x)^2 = \left(\frac{14}{2}\right)^2 = \frac{14^2}{4} = 10, 24$$

$$\rightarrow n = \frac{14}{2}$$



$$GE = EC$$

$$AN \parallel GD \rightarrow \frac{AN}{GD} = \frac{1}{2}$$

$$\frac{BD}{FD} = \frac{AG}{GC} \rightarrow \frac{BD}{FD} = \frac{1}{2}$$

$$\rightarrow FD = 2x \quad GF = 2x \rightarrow GD = 4x$$

$$GD = \frac{1}{2} BD \rightarrow BD = 4x$$

$$\frac{BD}{FD} = \frac{4x}{2x} = 2$$

جواب 1:

جواب 2: