

امتحان زیر خراش کارده به این سبک

$$AD = AE + ED, \text{ if } ED = 2m \Rightarrow AE = m \rightarrow \text{ضلع صغ} = 3m \quad (1)$$

15

$$\triangle AFE \sim \triangle CFB, \triangle BCF \sim \triangle EAF \rightarrow \frac{AF}{CF} = \frac{AE}{CB} = \frac{EF}{BF} = \frac{1}{3} \rightarrow CF = 3AF$$

$$AC = AF + CF = AF + 3AF = 4AF \rightarrow AF = \frac{CF}{3} \Rightarrow \frac{AE}{CB} = \frac{EF}{BF} = \frac{1}{3} \rightarrow BF = 3EF$$

$$20 \text{ ضلع صغ} = 2m \rightarrow \text{ضلع کب} = 2\sqrt{2}m \rightarrow AE = \frac{AC}{4} = \frac{2\sqrt{2}m}{4}$$

$$\frac{EF}{AF} = \frac{BC}{AB}, \frac{EF}{AF} = \frac{AE}{BC}, \frac{EF}{AF} = \frac{m}{2m} = \frac{1}{2} \rightarrow \frac{\sqrt{5}}{2} = \text{جواب}$$

$$\triangle AED \sim \triangle ACB \rightarrow \frac{AD}{AB} = \frac{AE}{AC} \Rightarrow \frac{2}{2+1} = \frac{m}{10} \rightarrow m + m = 2 \rightarrow m = 1 \quad (2)$$

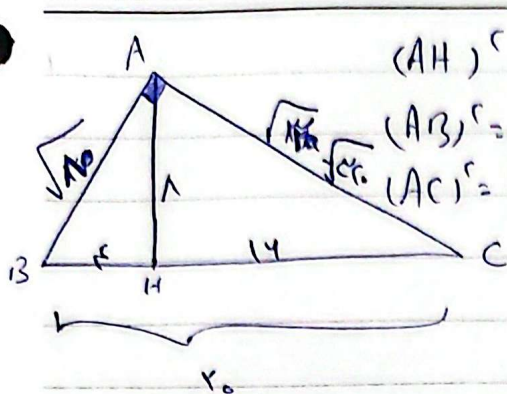
25

$$xy = 5a \rightarrow \text{if } x = 3k, y = 5k \rightarrow \frac{DE}{CF} = \frac{3}{5} = \frac{3a}{5a} \quad (3)$$

$$\frac{DE}{BC} = \frac{DE}{BF + FC} = \frac{3a}{3 + 5a} = \frac{AE}{AC} = \frac{3k}{3k + 5k} \rightarrow \frac{3a}{3 + 5a} = \frac{3k}{8k} \rightarrow 9a = 3 + 5a$$

30

$$\rightarrow 9a = 3 + 5a \rightarrow a = \frac{3}{4} = 0.75 \rightarrow BC = 3 + 5a = 3 + 3.75 = 6.75 \quad (4)$$



$$(AH)^2 = BH \times CH \rightarrow (AH)^2 = 4 \times 16 \rightarrow AH = 8$$

$$(AB)^2 = BH \times BC = 4 \times 20 = 80 \rightarrow AB = \sqrt{80}$$

$$(AC)^2 = CH \times BC = 16 \times 20 = 320 \rightarrow AC = \sqrt{320}$$

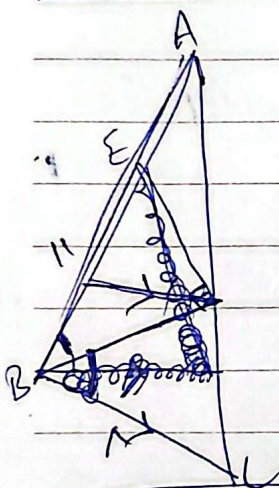
$$\boxed{AB = \sqrt{80} \text{ و } AC = \sqrt{320}}$$

5

$$\triangle BAF \sim \triangle ECF \rightarrow \frac{BF}{EF} = \frac{AF}{CF}$$

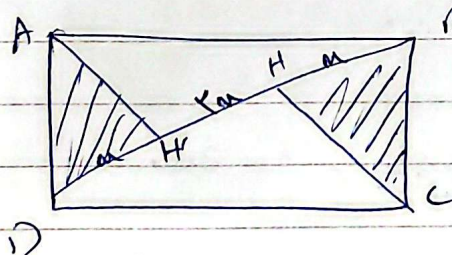
$$\frac{4}{m} = \frac{1+m}{1} \rightarrow m^2 + 1m = 4 \rightarrow m = 2 \rightarrow \boxed{AF = 1 + 2 = 3}$$

10



$$\frac{4}{m} = \frac{AE}{EB} = \frac{AE}{11} \rightarrow \frac{4 \times 11}{m} = \boxed{44 = AE}$$

15



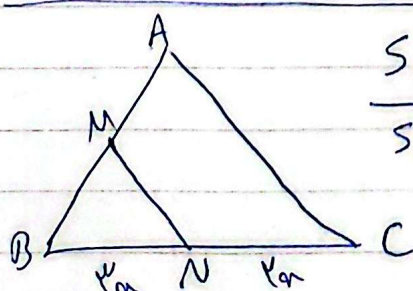
$$h^2 = m \times n \rightarrow h = \sqrt{mn}$$

$$S_{\square} = 2 \times S_{\triangle ABD} = 2 \times \frac{1}{2} \times \sqrt{mn} \times \sqrt{mn} = \sqrt{mn} \times \sqrt{mn} = mn$$

$$S_{\text{مربع}} = \frac{h \times m}{2} = \frac{m^2 \sqrt{m}}{2}$$

$$\frac{I}{II} = \frac{\frac{1}{2} \times \sqrt{mn} \times m}{\frac{1}{2} \times m^2 \sqrt{m}} = \boxed{1}$$

25



$$\frac{S_{BMN}}{S_{BAC}} = \frac{BM \times BN}{BA \times BC} = \frac{MB}{AB} \times \frac{1}{2} = \frac{1}{4}$$

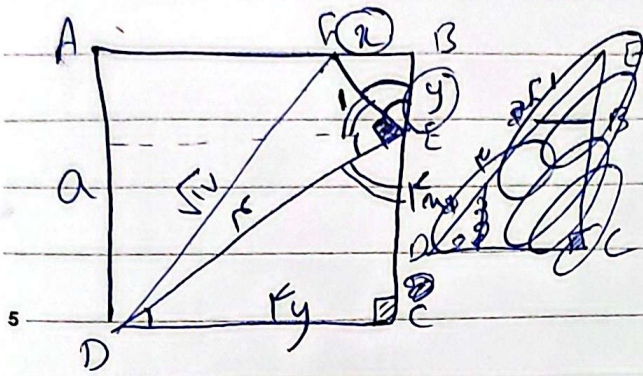
$$\frac{BM}{AB} = \frac{1}{2} \rightarrow \boxed{\frac{BM}{AM} = \frac{1}{1} = 1}$$

30

Subject:

Year: Month: Day: ()

page: ()



$$\triangle EFB \sim \triangle DEC$$

(9)

$$\rightarrow \frac{EF}{EC} = \frac{EB}{ED} \rightarrow \frac{EF}{EC} = \frac{EB}{ED}$$

$$\rightarrow \frac{EF}{EC} = \frac{EB}{ED} \rightarrow \frac{EF}{EC} = \frac{EB}{ED}$$

$$\rightarrow \frac{EF}{EC} = \frac{EB}{ED} \rightarrow \frac{EF}{EC} = \frac{EB}{ED}$$

$$\overline{AB} \parallel \overline{CD} \rightarrow \angle AGD = \angle CDE$$

(10)

$$\angle A = \angle C \rightarrow \angle EAC = \angle ECA$$

10

15

20

25

30