

① $\frac{AC}{AF} = \frac{1}{1} \Rightarrow AC \times \frac{1}{1} = AF = \frac{15\sqrt{2}}{1}$ (2)
 $\frac{BE}{EF} = \frac{1}{1} \Rightarrow BE \times \frac{1}{1} = \frac{\sqrt{10}}{1} = EF$
 $\frac{\sqrt{10}}{\frac{15\sqrt{2}}{1}} = \frac{\sqrt{10} \times \sqrt{2}}{15\sqrt{2}} = \frac{\sqrt{20}}{15\sqrt{2}} = \frac{\sqrt{2}}{15}$ ✓

② $\frac{AD}{AB} = \frac{ED}{BC} = \frac{AE}{AC}$ $\left. \begin{matrix} \hat{A} = \hat{A} \\ \hat{B} = \hat{C} \end{matrix} \right\} \triangle AED \sim \triangle ABC \Rightarrow$ (2)
 $\Rightarrow \frac{1}{1+m} = \frac{n}{1+n} \Rightarrow \frac{1}{1+m} = \frac{n}{1+n} \Rightarrow n=1$ ✓

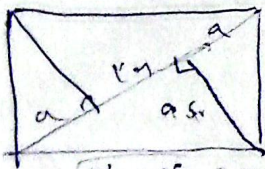
③ $y = \omega k$
 $m = \sqrt{k}$
 $\hat{D} = \hat{C}$
 $\hat{E} = \hat{F}$ $\left. \right\} \triangle DEH \sim \triangle FNC$ (2)
 $DE = a$
 $\frac{\sqrt{k}}{\sqrt{k}} = \frac{a}{BC}$
 $\frac{a}{\sqrt{k}} = \frac{1}{\omega}$
 $\Rightarrow a - 1 = \omega a$
 $\Rightarrow a = 1$
 $\frac{1}{\sqrt{k}} \times \sqrt{k} = \frac{1}{1} = BC$ ✓

④ $AB = \sqrt{14 \times 16} = 14$ (2)
 $AB^2 = 14 \times 16$
 $AC^2 = 14 \times 16$
 $AB = 14\sqrt{2}$
 $AC = 14\sqrt{2}$
 $\frac{AB}{AC} = \frac{1}{1}$ ✓

⑤ $\frac{y}{a} = \frac{1+a}{1}$ (2)
 $1+a = AF = 1+1 = 2$ ✓
 $a = 1$

⑥ $\left. \begin{matrix} DH \perp AB \\ BC \perp DH \end{matrix} \right\} BC \perp AB$ (2)
 $\frac{m+\omega, \omega}{\omega+\omega} = \frac{m+1}{1} \Rightarrow m=1$ ✓

V)

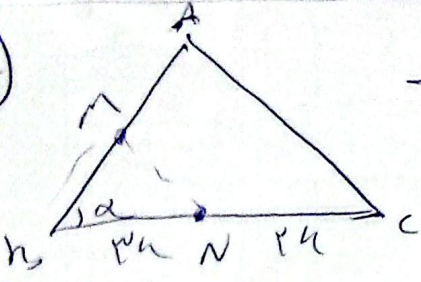


$$\frac{a \times a}{2} = \frac{1}{2} a \times a$$

$$\text{جواب} = \frac{1}{2} a \times a$$

$$\frac{a \times a \times \sqrt{2}}{2 \times a \times \sqrt{2}} = 1$$

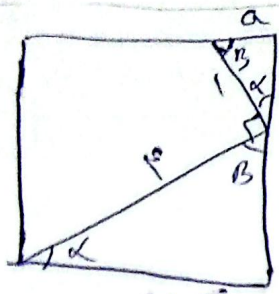
1)



$$\frac{S_{BMN}}{S_{ABC}} = \frac{\frac{1}{2} a \times BN \times BM}{\frac{1}{2} a \times BC \times BA} = \frac{1}{4}$$

$$\frac{BM}{BA} = \frac{1}{2} \Rightarrow \frac{BM}{BA - BM} = \frac{1}{1} = \frac{1}{1}$$

2)



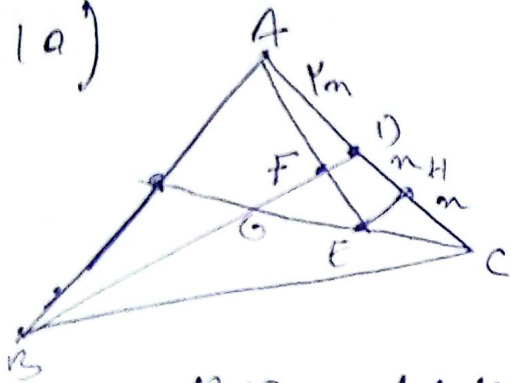
$$a + b = \sqrt{2} a$$

$$a = \sqrt{2} b$$

$$b = \frac{a}{\sqrt{2}}$$

$$\Rightarrow S = 10 / \sqrt{2}$$

1a)



$$EH \parallel FD \Rightarrow EH = \frac{1}{2} FD$$

$$FD = \frac{1}{2} BC$$

$$\Rightarrow EH = \frac{1}{2} \times \frac{1}{2} BC = \frac{1}{4} BC$$

$$\Rightarrow BG = \frac{1}{3} BC = \frac{1}{3} \times 4k = \frac{4}{3} k$$

$$\frac{BD}{FD} = \frac{1k}{\frac{1}{2} k} = 2$$

$$BD = BG + GD = \frac{4}{3} k + \frac{1}{3} k = \frac{5}{3} k$$

A piece of paper