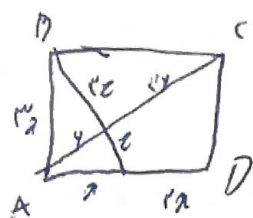


B



AC = $\sqrt{2}x$ $\Rightarrow y = \frac{\sqrt{2}}{2}x$

$BC \parallel AE \Rightarrow \triangle BFC \sim \triangle AFE$

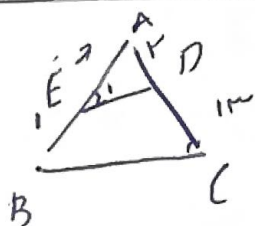
$\frac{EF}{BF} = \frac{AE}{BC} = \frac{AF}{FC} = \frac{1}{2}$

$BE = \sqrt{9x^2 + x^2} = \sqrt{10}x$

$fz = \sqrt{10}x = z = \frac{\sqrt{10}}{2}x$

$\Rightarrow \frac{EF}{AF} = \frac{z}{y} = \frac{\frac{\sqrt{10}}{2}x}{\frac{\sqrt{2}}{2}x} = \frac{\sqrt{10}}{\sqrt{2}} = \sqrt{5}$

$= \frac{\sqrt{5}}{1} \checkmark$

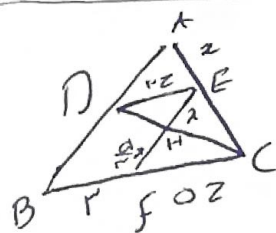


$\hat{A} = \hat{A}$
 $\hat{E} = \hat{C} \} \Rightarrow \triangle AED \sim \triangle ABC$

$\frac{y}{x+y} = \frac{a}{a+b}$

$x^2 + a - x = \dots$
 $(x+y)(x-a)$

$x = 2$
 $a = -4$



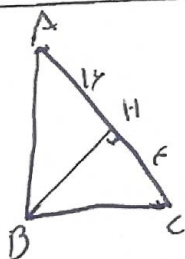
$xy = 2x$

$DE \parallel BC \Rightarrow \frac{x}{x+y} = \frac{z}{z+w}$

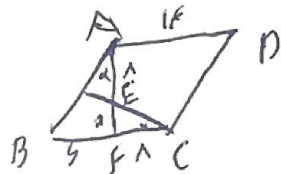
$DE \parallel BC \Rightarrow \triangle HDE \sim \triangle HFC$

$\frac{DE}{FC} = \frac{x}{x+y} = \frac{z}{z+w}$

$fz = 2$
 $z = \frac{2}{f}$
 $BC = 2 + \frac{2}{f} = \frac{2(f+1)}{f} \checkmark$



$BC^2 = 4x^2$ $BC = 2x$
 $AB^2 = 4y^2 \rightarrow AB = 2y$
 $\frac{AB}{BC} = 2 \checkmark$

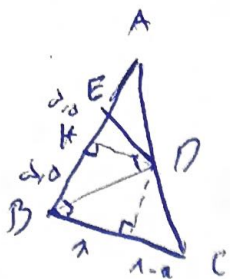


$\tan \alpha = \frac{2}{x} = \frac{4}{x+y}$

$x^2 + 2x - 4x = \dots$
 $(x+y)(x-4)$

$af = 1 + f = 12 \checkmark$

$(2) - w$



$$\text{في } BD \rightarrow HD = PH' = \Delta$$

$$x^2 = a(11-a)$$

$$13^2 = 11a$$

$$169 = 11a$$

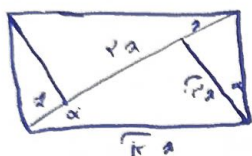
اذا كان $6 \leq x$
 اذا كان $2 \leq x$

$$\frac{y+d}{1+y} = \frac{d}{1}$$

$$1+y \neq 1 \Rightarrow y = d + d \Rightarrow y = 2d$$

$$y = 4.4 \checkmark$$

(2)

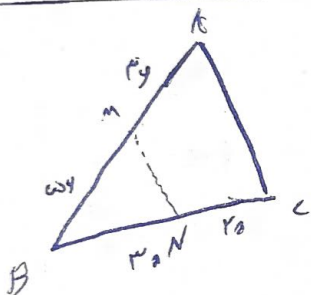


$$y = 2x$$

$$\frac{S_{\text{مستطيل}}}{S_{\text{مربع}}} = \frac{\sqrt{10} \times 2 \times \sqrt{10}}{2 \times 2 \times 2} = 1 \checkmark$$

$$\sin \alpha = \frac{y}{x} = \frac{2}{1} \rightarrow y = 2x$$

(2) - ✓



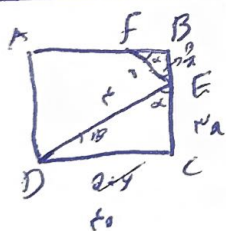
$$\frac{S_{ABC}}{S_{BMN}} = \frac{\frac{1}{2} \sin B \times AB \times BC}{\frac{1}{2} \sin B \times BM \times BN} = 4$$

$$\frac{AB}{BM} = \frac{2}{1}$$

$$\frac{AB - BM}{BM} = \frac{1}{1}$$

$$\frac{BM}{AM} = \frac{1}{1} \checkmark$$

(2) - 1



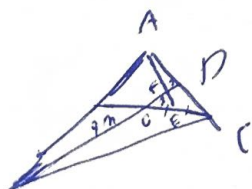
$$\alpha = \alpha \Rightarrow \triangle FBE \sim \triangle PEC$$

$$\frac{f}{1} = \frac{x+y}{x}$$

$$f = x+y \Rightarrow x = y$$

$$PEC = \alpha = f \xrightarrow{\text{مربع}} f = x \rightarrow S_{\text{مربع}} = (x)^2 = 10.24 \checkmark$$

(2) - 4



$$AE, FD \rightarrow \text{مربع} \rightarrow f = D = a \quad Gf = 2a \quad (2) \quad 1$$

$$\frac{BD}{fD} = \frac{9}{2} = 4.5 \checkmark$$