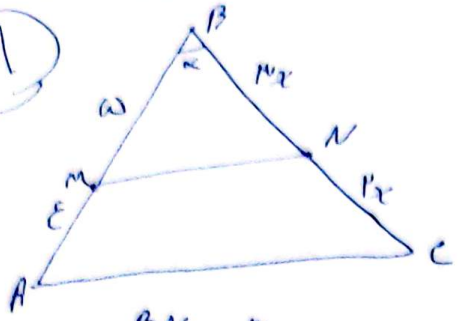
۸)



$S_{ABC} = ۳ S_{BMN}$

$\rightarrow \frac{۱}{۲} ۵ \times AB \sin\alpha = ۳ \times \frac{۱}{۲} \times ۳x \times BM \sin\alpha$

$۵AB = ۹BM$

$\frac{AB}{BM} = \frac{۹}{۵} \Rightarrow \frac{BM}{AM} = \frac{۵}{۴}$

$\frac{BN}{NC} = \frac{۳}{۲}$

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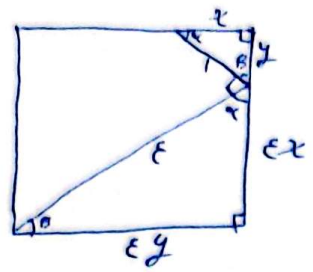
۹)



$\varepsilon y = \varepsilon x + y \rightarrow ۳y, \varepsilon x \rightarrow y = \frac{\varepsilon}{۳}x$

$x^۲ + y^۲ = ۱ \rightarrow x^۲ + \frac{۱۴}{۹} x^۲ = ۱ \rightarrow \frac{۲۵}{۹} x^۲ = ۱ \rightarrow x = \frac{۳}{۵}$

$y = \frac{۴}{۵}$

$S = ۱۴ y^۲ = ۱۴ \times \frac{۱۴}{۲۵} = ۱۰,۲۴$

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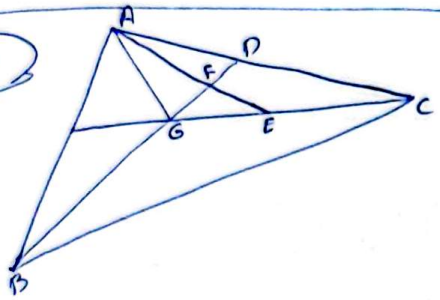
۱۰)

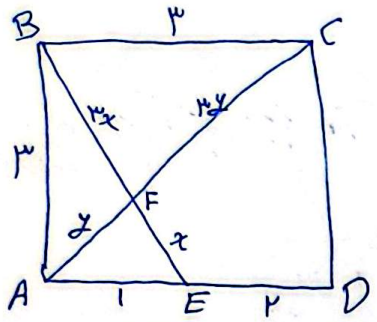


$GB = \frac{۱}{۳} BD$

$FD = \frac{۱}{۳} GD \rightarrow FD = \frac{۱}{۳} \times \frac{۱}{۳} BD$

$\rightarrow ۹FD = BD \rightarrow \frac{BD}{FD} = ۹$

ناصری

① 

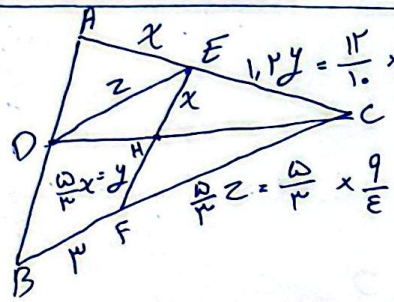
$$\left.\begin{array}{l} A\hat{B}C:\ (\varepsilon y)^{۲}=۱۸ \\ A\hat{B}E:\ (\varepsilon x)^{۲}=۱۰ \end{array}\right\} \xrightarrow{\div} \frac{x^{۲}}{y^{۲}}\cdot\frac{۱۸}{۱۰}=\frac{۹}{۵}\to\frac{x}{y}=\frac{\sqrt{۵}}{۳}$$

گزینه ج

② $A\hat{E}D\sim A\hat{B}C\Rightarrow\frac{۲}{x+۱}=\frac{x}{۱۵}\to x^{۲}+x=۳۰$

$$x^{۲}+x-۳۰=۰$$

$$(x+۶)(x-۵)=۰\to x=-۶\ \text{ق}\ ۵\ \checkmark$$

③ 

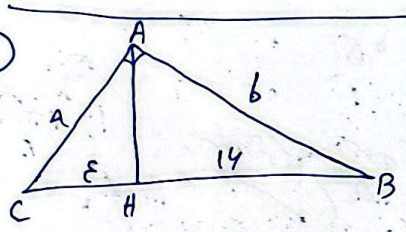
$$۱,۲y=\frac{۱۲}{۱۰}\times\frac{۵}{۳}x=۲x\quad\Leftarrow y=\frac{۵}{۳}x$$

$$\frac{x}{۳x}=\frac{z}{\frac{۵}{۳}z+۳}\to\frac{۵}{۳}z+۳=۳z$$

$$۳=\frac{۴}{۳}z\to z=\frac{۹}{۴}$$

$$\frac{۵}{۳}x=y\qquad \frac{۵}{۳}z=\frac{۵}{۳}\times\frac{۹}{۴}=\frac{۱۵}{۴}=۳,۷۵$$

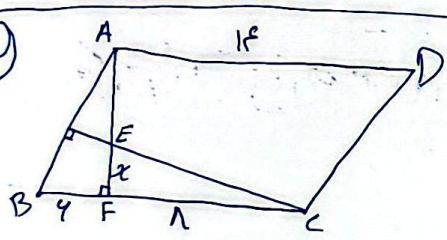
$$\to BF+FC=۳+۳,۷۵=۶,۷۵$$

④ 

$$a^{۲}=۴\times۲۰$$

$$b^{۲}=۱۴\times۲۰$$

$$\xrightarrow{\div}\ \frac{b^{۲}}{a^{۲}}=۴\to\frac{b}{a}=۲$$

⑤ 

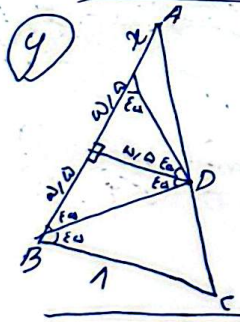
$$E\hat{F}C\sim A\hat{F}B$$

$$\frac{x}{۶}=\frac{۸}{x+۸}\to x^{۲}+۸x=۴۸$$

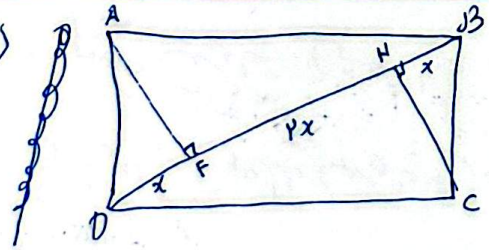
$$x^{۲}+۸x-۴۸=۰$$

$$(x+۱۲)(x-۴)=۰\to x=۴$$

$$AF=۱۲$$

⑥ 

$$\frac{x+۱,۵}{۱,۵}=\frac{۱,۵}{۲,۵}\xrightarrow{\text{تقسیل در صورت}}\frac{x}{۱,۵}=\frac{۳}{۲,۵}\to x=\frac{۹}{۵}=۳,۶$$

⑦ 

$$BH=DF=\frac{۱}{۲}FH$$

$$\frac{S_{HBC}}{S_{BCD}}=\frac{۱}{۴}\to\frac{S_{HBC}}{S_{BCD}}\times\frac{S_{BCD}}{S_{ABCD}}=\frac{S_{HBC}}{S_{ABCD}}=\frac{۱}{۴}\times\frac{۱}{۲}=\frac{۱}{۸}$$

$$\frac{S_{ABCD}}{S_{HBC}}=۸$$