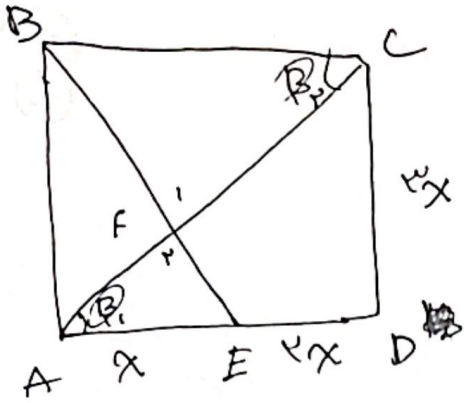
(۱)



امیر سعی فرزوعی کلاس پیر B تکلیف ۲

$\hat{F}_1 = \hat{F}_2$

$BC \parallel AE \Rightarrow \hat{A}_1 = \hat{C}_2$

$\Rightarrow \overset{\triangle}{BFC} \sim \overset{\triangle}{EFA}$

$$\frac{3x}{x} = \frac{BC}{AE} = \frac{BF}{EF} = \frac{CF}{AF} = 3$$

$$\frac{BF}{EF} = \frac{CF}{AF} \Rightarrow \frac{BE}{EF} = \frac{CA}{AF} \Rightarrow \frac{BE}{CA} = \frac{EF}{AF}$$

$AC = 3\sqrt{2}x \qquad BE = \sqrt{10}x \Rightarrow \frac{EF}{AF} = \frac{\sqrt{10}}{3\sqrt{2}}$

$\frac{\sqrt{5}}{3}$

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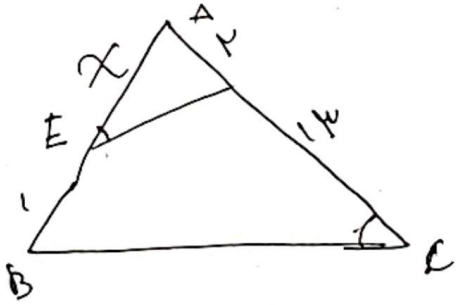
(۲)



$\hat{A} = \hat{A}$, $\hat{E} = \hat{C}$ $\rightarrow \overset{\triangle}{AED} \sim \overset{\triangle}{ACB}$

$$\frac{2}{x+1} = \frac{x}{15} \Rightarrow 30 = x^2 + x$$

$\Rightarrow x = 5$

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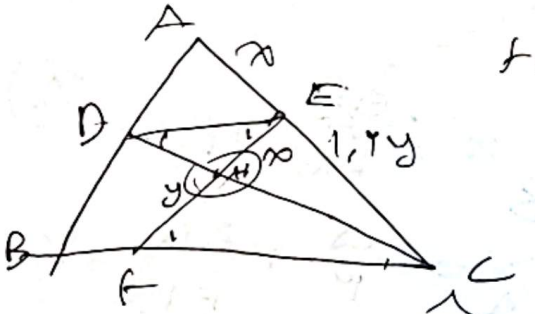
(۳)



$FC \parallel DE \Rightarrow \hat{F}_1 = \hat{E}_1, D_1 = C_1$

$\Rightarrow \overset{\triangle}{FHC} \sim \overset{\triangle}{EHD}$

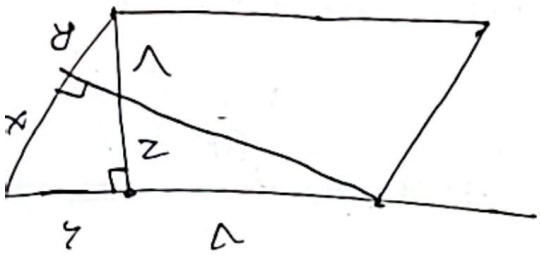
$\Rightarrow \frac{x}{y} = \frac{DE}{FC} = \frac{3}{5} \quad 5x = 3y \Rightarrow x = \frac{3}{5}y$

$ED \parallel BC \Rightarrow \overset{\triangle}{DAE} \sim \overset{\triangle}{BAC}$

$$\frac{FC}{BC} = \frac{10}{18} = \frac{8}{18} = \frac{3}{BC} \Rightarrow BC = \frac{3 \times 18}{8}$$

$$\left.\begin{aligned} \frac{x}{x+1.2y} &= \frac{x}{1.8y} = \frac{ED}{BC} \\ \frac{x}{y} &= \frac{DE}{FC} \end{aligned}\right\} \Rightarrow$$

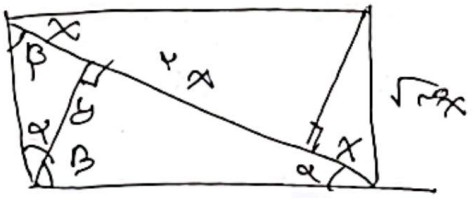
۵



$$\frac{۸}{z} = \frac{۸+z}{۶} \Rightarrow ۴۸ = ۸z + z^۲ \Rightarrow z = ۴$$

$$۸+z = ۸+۴ = ۱۲$$

۷



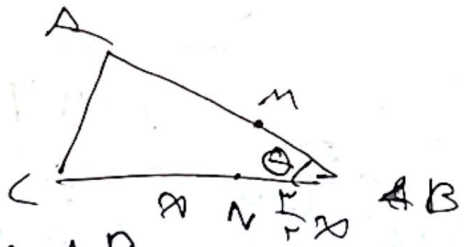
$$\frac{۳x}{y} = \frac{y}{x} \Rightarrow y = \sqrt{۳}x$$

$$(۳x)^۲ + (\sqrt{۳}x)^۲ = ۱۲x^۲ \Rightarrow \sqrt{۱۲}\,x$$

$$\sqrt{۴}x \times \sqrt{۱۲}x = \frac{۲\sqrt{۱۲}\,x^۲}{\sqrt{۳}\,x^۲} = ۸$$

$$x \times \sqrt{۳}x =$$

۸

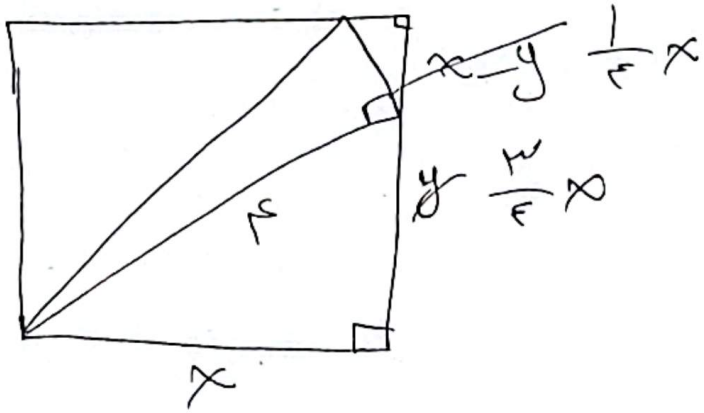


$$S = \frac{۱}{۲}\sin\theta \times ab$$

$$\Rightarrow \frac{S_۱}{S_۲} = \frac{\frac{۱}{۲}\sin\theta \times \frac{۵}{۲}x \times AB}{\frac{۱}{۲}\sin\theta \times \frac{۳}{۲}x \times BM} = \frac{۵}{۳} \times \frac{AB}{BM} = ۳$$

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

۹



$$\frac{x}{4} = \frac{x-y}{1} \Rightarrow x = 4x - 4y$$

$$\Longrightarrow x = \frac{4}{3}y$$

$$x^2 + \frac{9}{16}x^2 = \frac{25}{16}x^2 \Rightarrow \frac{5}{4}x = 4$$

$$x = \frac{16}{5} \Rightarrow \frac{256}{25} = x^2 = 5$$