شماره صندلی ۲۱ آیدا محمدزاد یازدهم تجربی B

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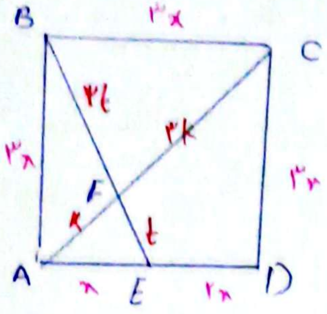

$$\frac{t}{k} = \frac{BE}{AC} = \frac{4t}{4k} = \frac{\sqrt{10x^2}}{\sqrt{18x^2}} = \sqrt{\frac{10}{18}} = \frac{\sqrt{5}}{3}$$

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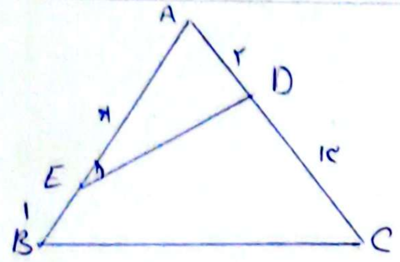

$\overset{\triangle}{ADE} \sim \overset{\triangle}{ABC}$ $\quad A\hat{E}D = A\hat{C}B$

$$\frac{2}{x+1} = \frac{x}{15} \rightarrow x^2 + x = 30 \rightarrow x^2 + x - 30 = 0$$

$(x-5)(x+6) = 0$

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$x = 5$

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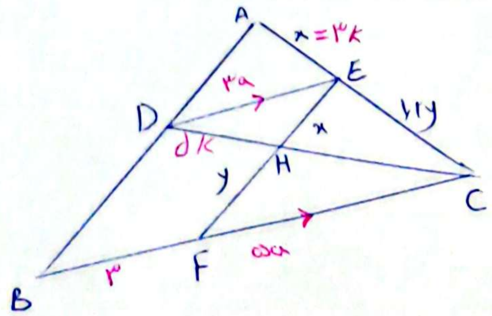

$BF = 3$ $\quad x = 3k$

$3y = 5x$ $\quad y = 5k$

$$\frac{3a}{3+5a} = \frac{3k}{9k} = \frac{1}{3}$$

$a = 0.75$

$BC = ?$

$BC = 6.75$

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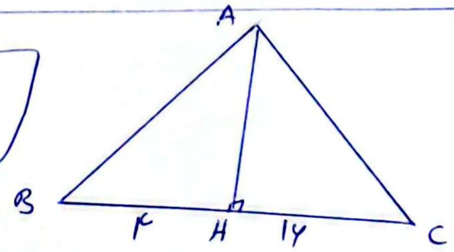
$AC^2 = 320$

$AB^2 = 80$

$$\frac{AC^2}{AB^2} = \frac{320}{80} = \sqrt{4} \quad \frac{AC}{AB} = 2$$



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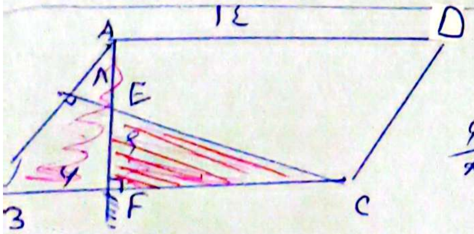

$\overset{\triangle}{BAF} \cong \overset{\triangle}{ECF} \longrightarrow \frac{BF}{EF} = \frac{AF}{CF}$

$$\frac{6}{x} = \frac{x+8}{8} \longrightarrow x(x+8) = 48$$

x → ۴

$AF = 8 + 4 = 12$

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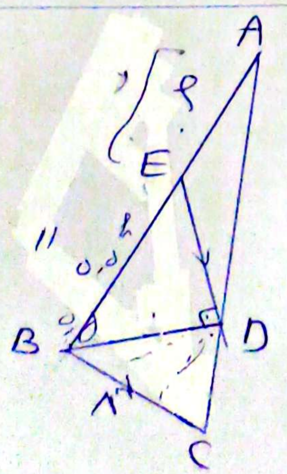

$AE = 6$

$x^2 = 5.5 \times 5.5 \Rightarrow x = \frac{11}{2}$

$$\frac{Ah}{AB} = \frac{Dh}{BC} \longrightarrow \frac{y+5.5}{y+11} = \frac{\frac{11}{2}}{\frac{8}{2}} \rightarrow \frac{11}{16}$$

$16y + 88 = 11y + 121 \rightarrow$

$5y = 33 \rightarrow y = 6.6$

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Scanned with CamScanner

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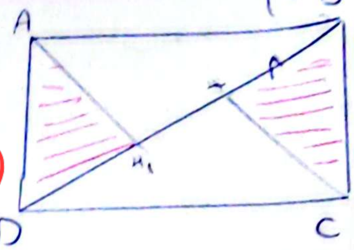

$y^2 = x \cdot 2x \to y = \sqrt{2}x$

مساحت : $2 \times S_{\overset{\triangle}{ABD}} = \sqrt{2}x \times 4x = 4\sqrt{2}x^2$

هاشور : $\frac{(y) \times x}{2} = \frac{\sqrt{2}x^2}{2}$

$\frac{4\sqrt{2}x^2}{\frac{\sqrt{2}x^2}{2}} = 8$

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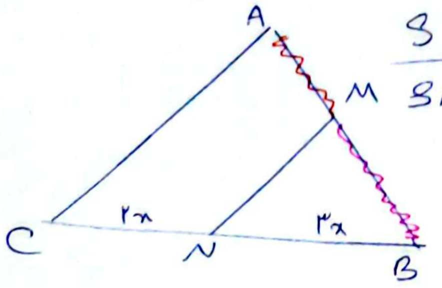

$2BN = 3NC$

$S_{ABC} = 3S_{BMN}$ $\frac{BM}{AM} = ?$

$\frac{S_{BMN}}{S_{ABC}} = \frac{BM \times BN}{AB \times BC}$

$\frac{BM}{AB} \times \frac{3}{5} = \frac{1}{3}$

$\Rightarrow \frac{BM}{AB} = \frac{5}{9} \to \frac{BM}{AM} = \frac{5}{4} = 1.25$

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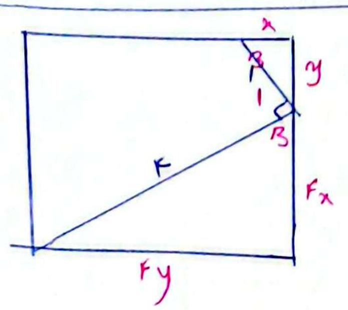

$4x + y = 4y \to x = \frac{3}{4}y$

$x^2 + y^2 = 1$

$\frac{9}{16}y^2 + y^2 = 1 \to 25y^2 = 16$

$16y^2 = \frac{256}{25} = 10.24$ جواب

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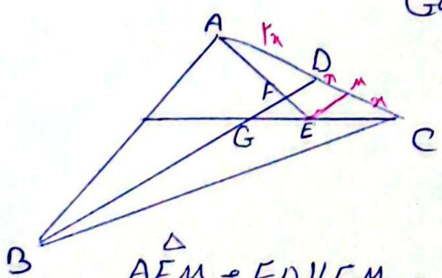
از نقطه E خطی موازی میانه BD رسم کنیم تا AC را در M قطع کند



$GE = EC$ $\frac{BD}{FD}$

$\overset{\triangle}{GDC} : EM \parallel GD \to \frac{EC}{EG} = \frac{CM}{DM} \to 1 = \frac{CM}{DM} \Rightarrow CM = DM$

$AD = 2x$ ، $CM = DM = x$

$\overset{\triangle}{AEM} : FD \parallel EM \to \frac{AD}{AM} = \frac{FD}{EM} \to \frac{2x}{3x} = \frac{FD}{EM} \Rightarrow EM = \frac{3}{2}FD$

$\overset{\triangle}{GDC} : EM \parallel DG \to \frac{CM}{CD} = \frac{EM}{GD} \Rightarrow \frac{x}{2x} = \frac{EM}{GD} \to GD = 2EM \to GD = 2(\frac{3}{2}FD)$

زیرا $\frac{GD}{BD} = \frac{1}{3} \Rightarrow \frac{3FD}{BD} = \frac{1}{3} \Rightarrow \frac{BD}{FD} = 9$

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