نام و نام خانوادگی ...مانا...بابکیان...... پاسخنامه تشریحی تکلیف شماره ..۲۱.... کلاس ..یازدهم تجربی...B......

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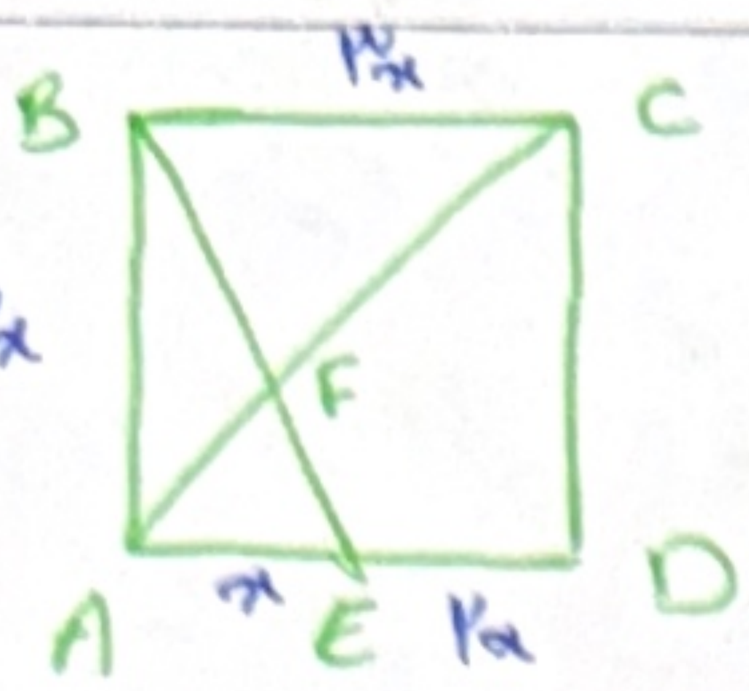

$\frac{EF}{AF} = ?$

$AC \rightarrow \sqrt{(3x)^2+(3x)^2} = \sqrt{18x^2} = 3x\sqrt{2}$

تط

$AF = \frac{3\sqrt{2}}{4} x$

$BE \rightarrow \sqrt{(3x)^2 + x^2} = \sqrt{9x^2+x^2} = x\sqrt{10} \Rightarrow EF = \frac{x\sqrt{10}}{4}$

$\frac{\frac{x\sqrt{10}}{4}}{\frac{3x\sqrt{2}}{4}} = \frac{\sqrt{5}}{3}$

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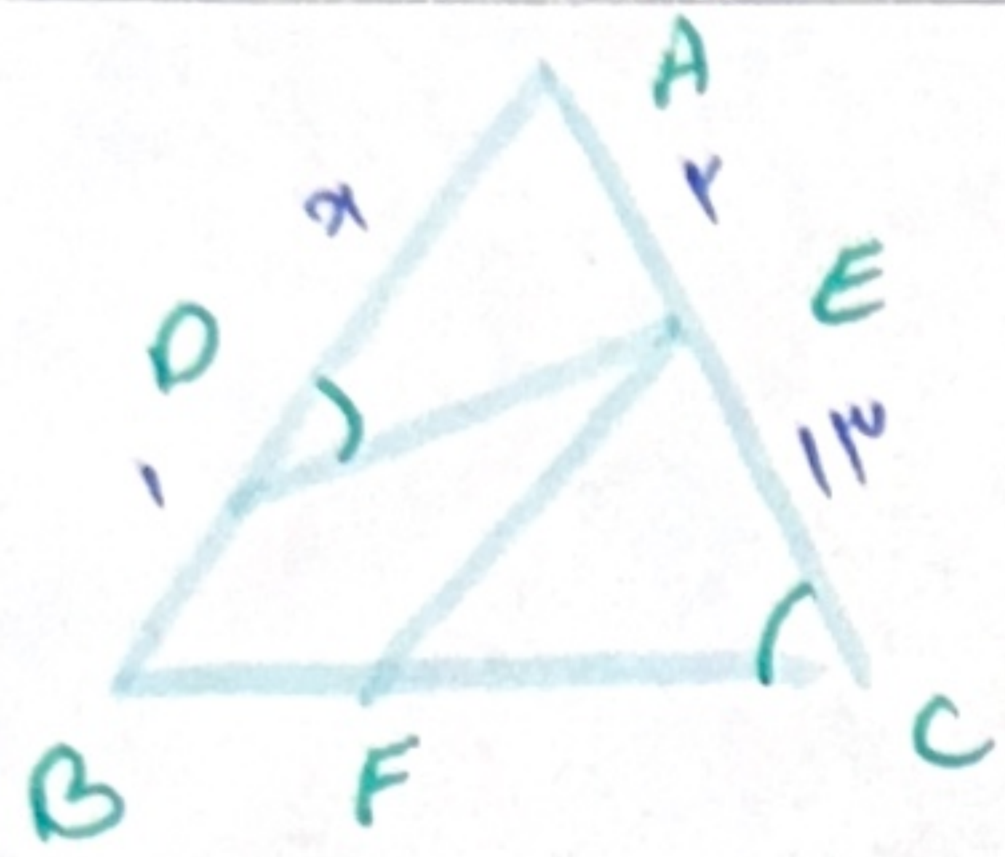

$A\hat{D}E \sim A\hat{C}B$

$\frac{x}{15} = \frac{2}{x+1} \Rightarrow x^2 + x - 30 = 0 \Rightarrow (x+6)(x-5) \Rightarrow x = 5$ ق ق

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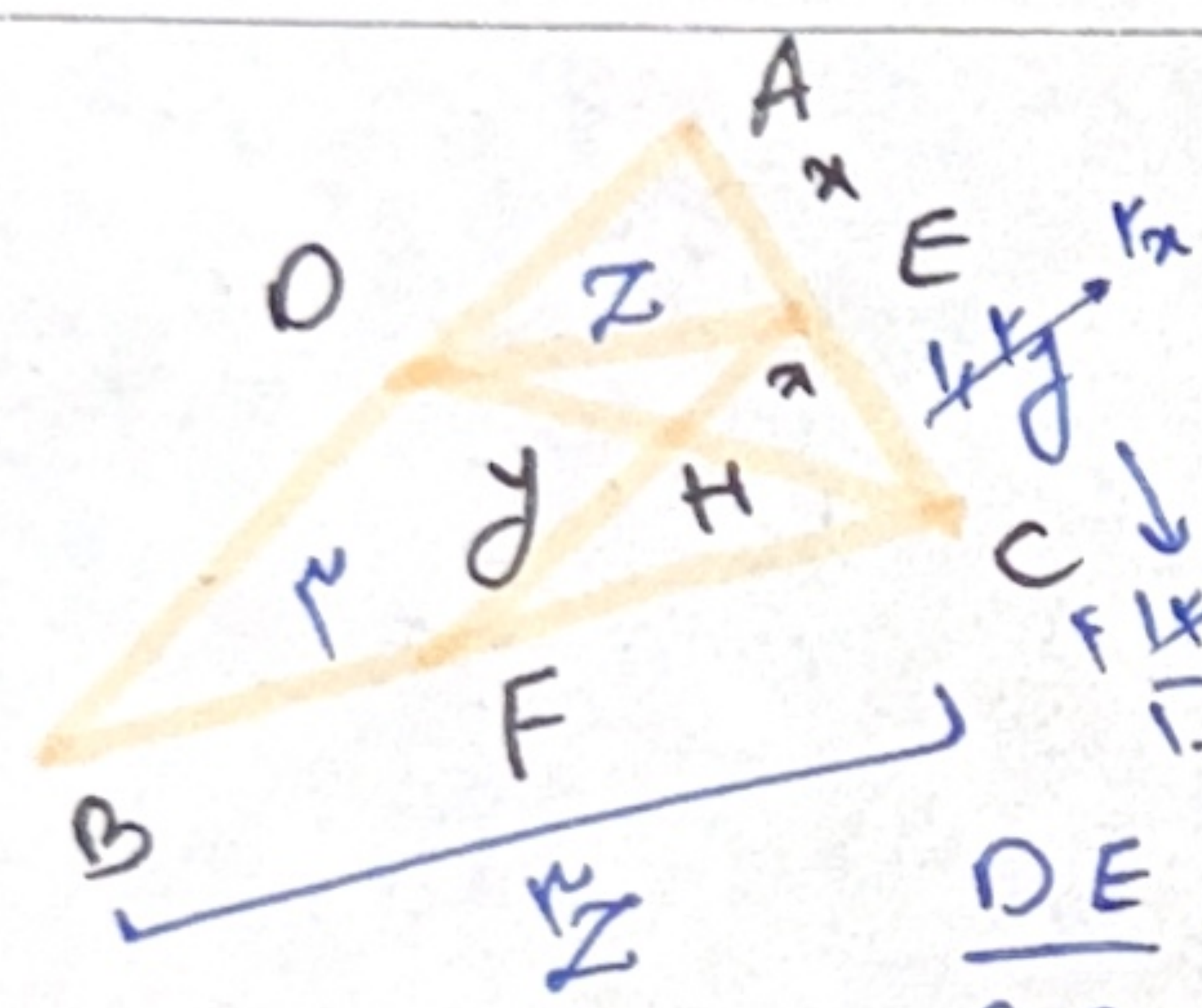

$3y = 5x \longrightarrow y = \frac{5}{3}x$

$BF = 3 \quad , BC = ?$

$\frac{FC}{FC+3} = \frac{5}{9} \Rightarrow \frac{FC}{3} = \frac{5}{4}$

$FC = \frac{15}{4} = 3.75$

$BC = 3 + 3.75 = 6.75$

$\frac{DE}{BC} = \frac{1}{3} \quad , \frac{DE}{FC} = \frac{x}{\frac{5}{3}x} = \frac{3}{5} \Rightarrow \frac{\frac{DE}{FC}}{\frac{DE}{BC}} = \frac{\frac{3}{5}}{\frac{1}{3}} = \frac{9}{5} = \frac{BC}{FC}$

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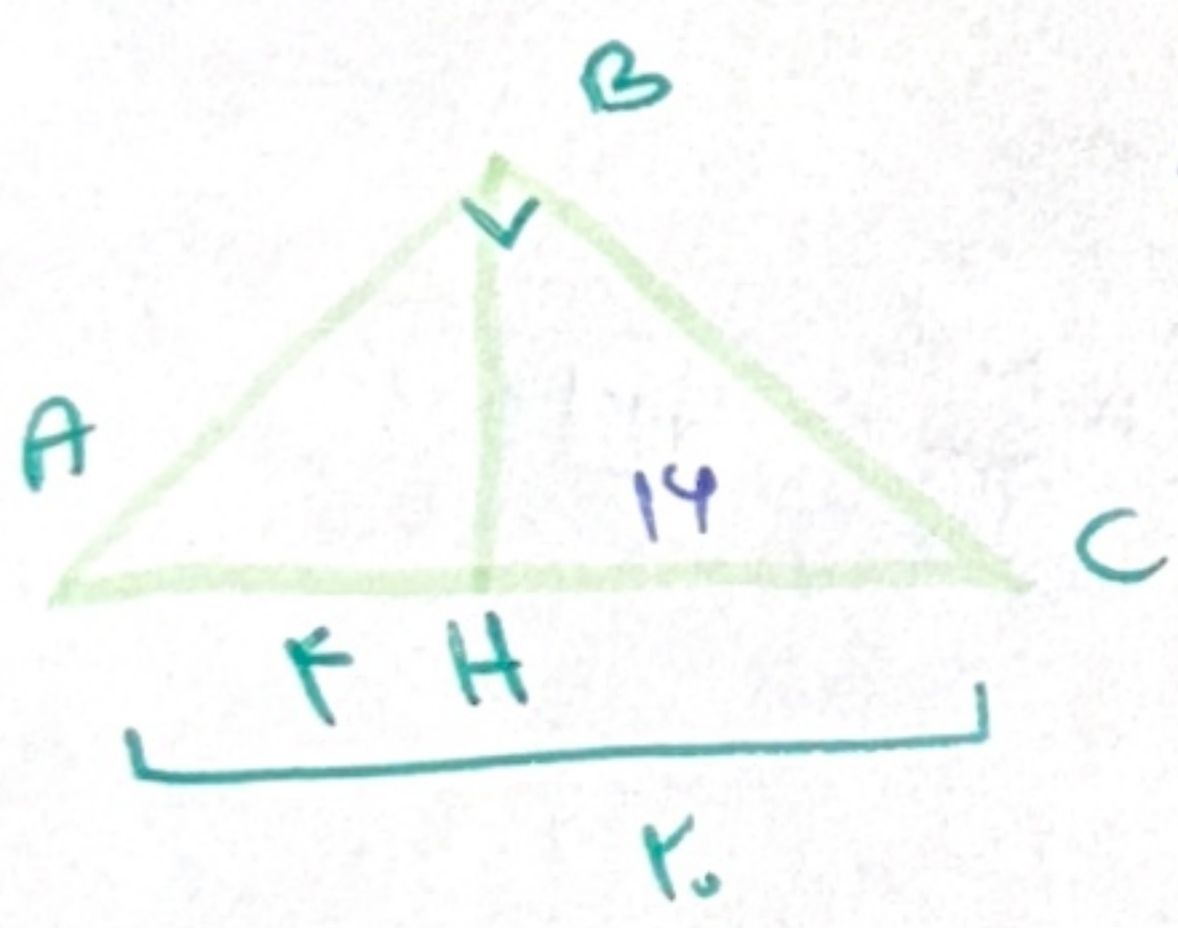

$AB^2 = AH \times AC \Rightarrow AB^2 = 4 \times 20 \Rightarrow AB = \sqrt{4 \times 20} = 4\sqrt{5}$

$BC^2 = CH \times AC \Rightarrow 16 \times 20 \Rightarrow BC = \sqrt{16 \times 20} = 8\sqrt{5}$

$\frac{BC}{AB} = \frac{8\sqrt{5}}{4\sqrt{5}} = 2$

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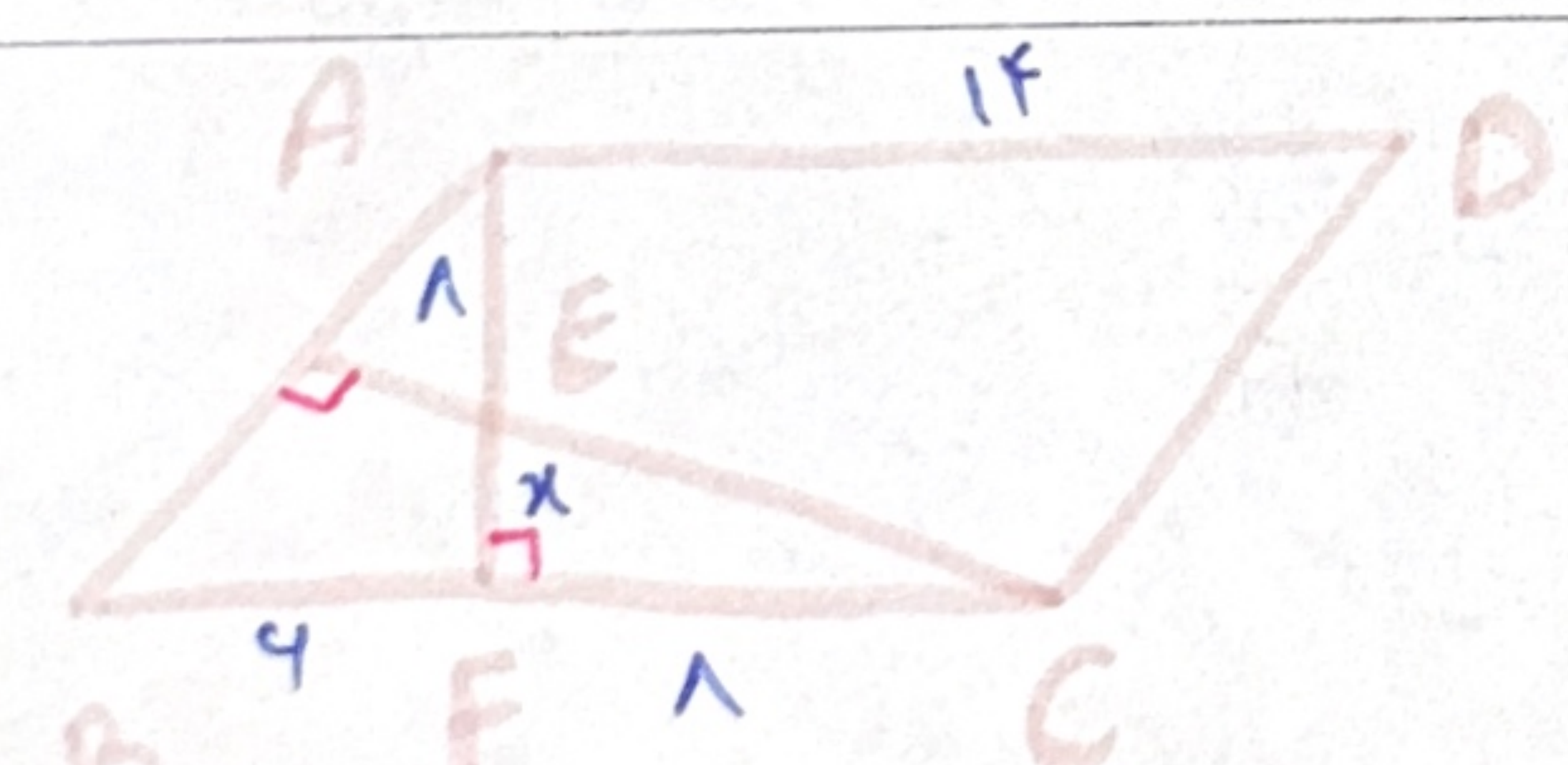

$B\hat{A}F \sim E\hat{C}F$

$\frac{BF}{EF} = \frac{AF}{CF} \Rightarrow \frac{6}{x} = \frac{8+x}{8} \Rightarrow x^2 + 8x - 48 = 0$

$(x+12)(x-4) = 0$

$x = 4$

$AF = 4 + 8 = 12$

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ارتفاع وارد بر وتر میانه است $\Rightarrow 5.5 = BH = EH$

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

$\frac{AH}{AB} = \frac{DH}{BC} \Rightarrow \frac{y+5.5}{y+11} = \frac{\frac{11}{2}}{8} = \frac{11}{16} \rightarrow 16y + 88 = 11y + 121$

$5y = 33 \rightarrow y = 6.6$

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$\frac{4x \times h}{\frac{x \times h}{2}} = 8$

کل ← تشکیل شده از ۲ مثلث قائم‌الزاویه $\Rightarrow \left(\frac{3x \times h}{2}\right) \times 2$

مثلث کوچکتر ← $\frac{x \times h}{2}$

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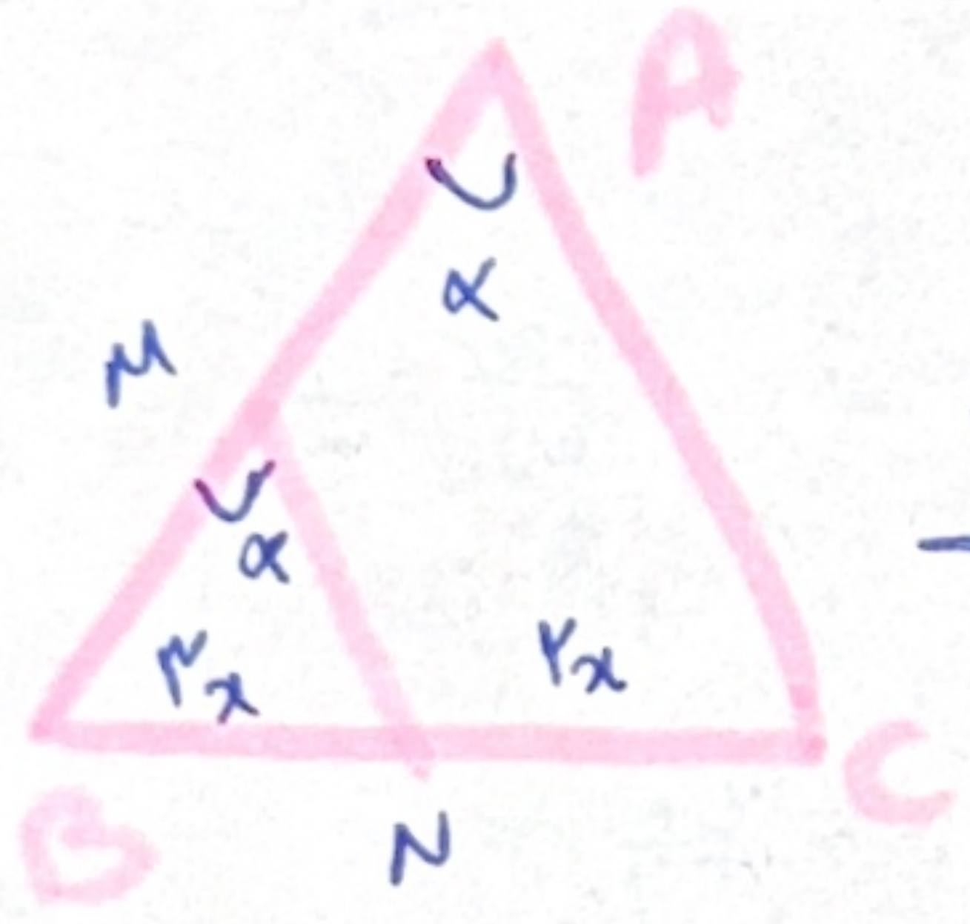

$2BN = 3NC$

$\frac{S_{A\hat{B}C}}{S_{B\hat{M}N}} = \frac{3}{1} \Rightarrow \frac{BM}{AM} = ?$

$\frac{S_{A\hat{B}C}}{S_{B\hat{M}N}} = \frac{AB \times BC \times \frac{\sin\alpha}{2}}{BM \times BN \times \frac{\sin\alpha}{2}} \Rightarrow \frac{AB}{BM} \times \frac{5}{3} = 3 \Rightarrow \frac{AB}{BM} = \frac{9}{5}$

$\frac{BM}{AM} = \frac{5}{4} = 1.25$

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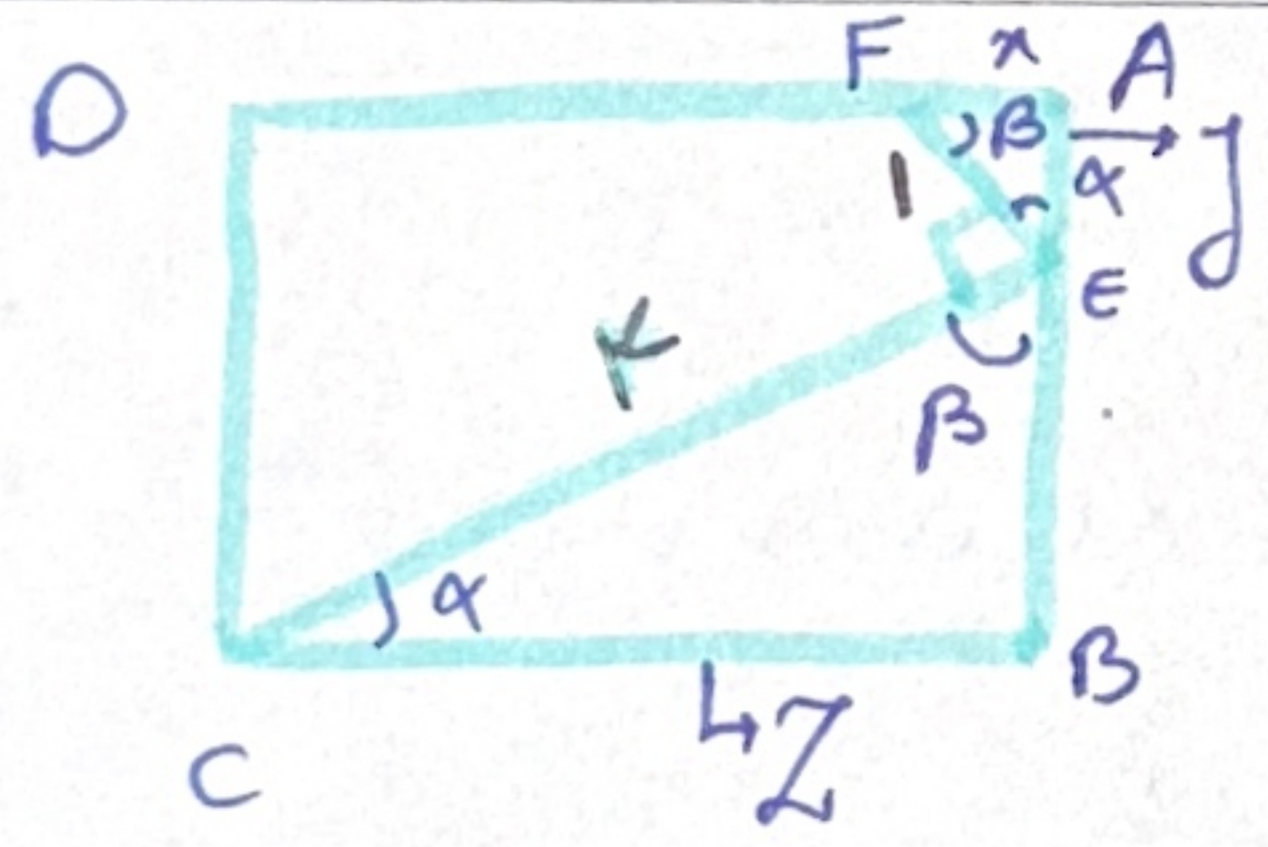

$\frac{x}{z-y} = \frac{y}{z} = \frac{1}{4} \Rightarrow y = \frac{z}{4} , x = \frac{3z}{16}$

$z^2 + \left(\frac{3}{4}\right)^2 = 4^2 \Rightarrow z^2 = 16 - \frac{9}{16} \Rightarrow z^2 = \frac{16^2}{25} = 10.24$

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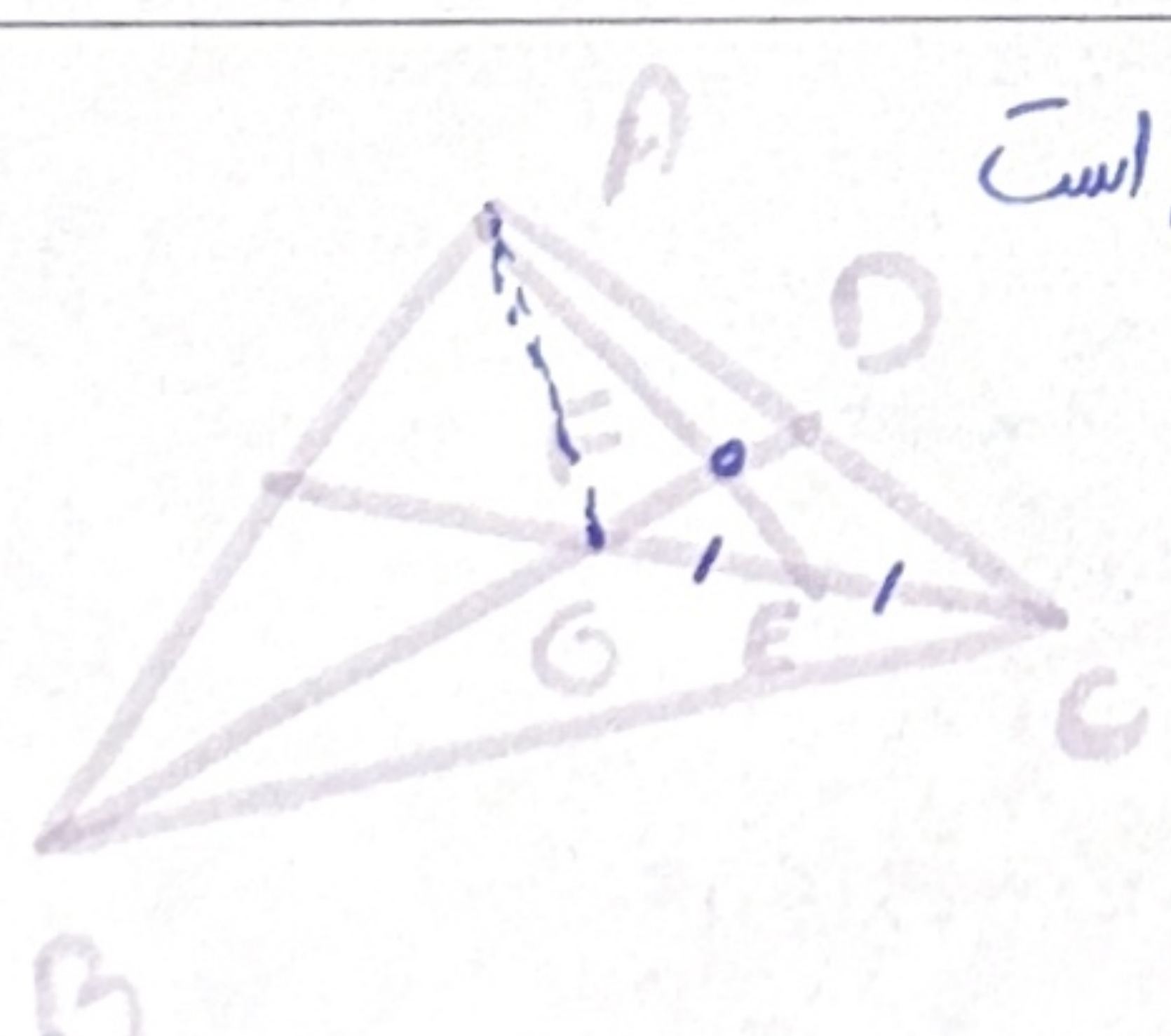

F مرکز ثقل مثلث AGC است $\Rightarrow FD = \frac{1}{3} GD$

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