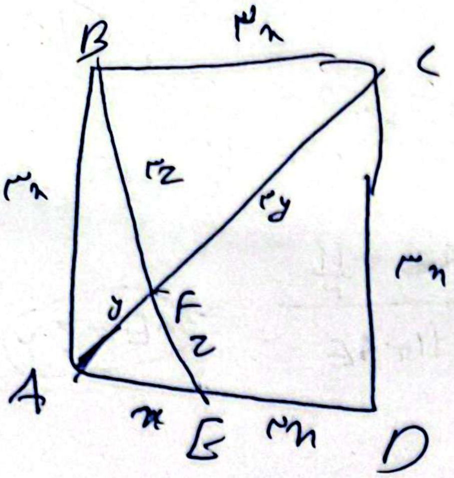
سعيد سمير عبدالباقي

①

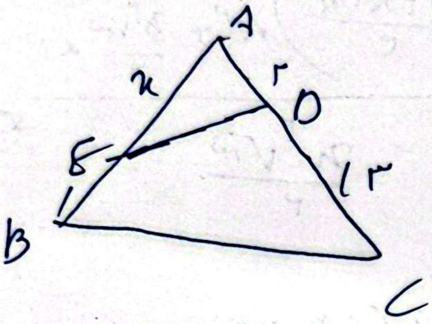


$\sqrt{١٠x^٢} = ٤z \Rightarrow z = \frac{x\sqrt{١٠}}{٤}$

$\sqrt{١٨x^٢} = ٣x\sqrt{٢} = ٤y \Rightarrow y = \frac{٣x\sqrt{٢}}{٤}$

$\frac{z}{y} = \frac{\frac{x\sqrt{١٠}}{٤}}{\frac{٣x\sqrt{٢}}{٤}} = \frac{\sqrt{٥}}{٣}$

②

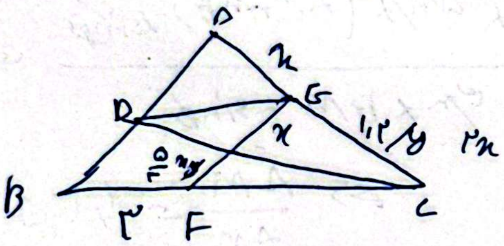


$\frac{٢}{١+x} = \frac{x}{١٥} \Rightarrow x^٢ + x = ٣٠$

$x^٢ + x - ٣٠ = (x+٦)(x-٥)$

$\boxed{x = ٥}$

③



$\frac{DE}{BC} = \frac{١}{٣}$ $\frac{DE}{FC} = \frac{٣}{٥}$

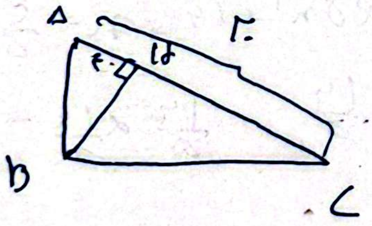
$٣DE = BC \rightarrow ٣DE = ٣ + FC$

$\frac{٥}{٣} DE = FC$

$٣DE = ٣ + \frac{٥}{٣} DE \Rightarrow DE = \frac{٩}{٤}$

$\frac{٩}{٤} \times ٣ = \boxed{\frac{٢٧}{٤} = ٦٫٧٥}$

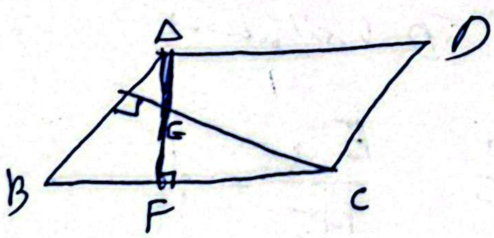
④



$AB^٢ = AD \times AC \Rightarrow AB = \sqrt{٨٠}$

$BC^٢ = ١٦ \times ٢٠ \Rightarrow BC = \sqrt{٣٢٠}$

⑤



$\overset{\triangle}{AFB} \sim CFE$.

$\frac{٦}{EF} = \frac{٨+EF}{٨}$ $EF = t$

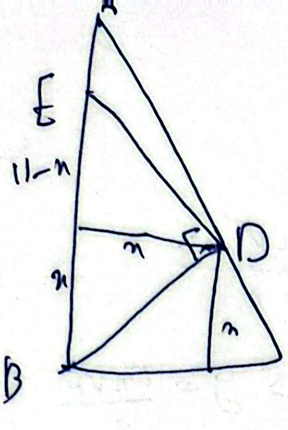
$t^٢ + ٨t - ٤٨$

$(t+١٢)(t-٤)$

$\boxed{t = ٤}$

$٤ + ٨ = \boxed{١٢}$

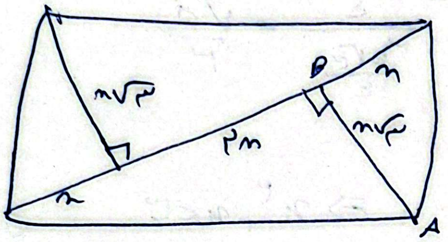
(۶)



$x^{۲} = x(۱۱ - x)$ ⟨ $x = ۰$ غ ق ق ، $x = \frac{۱۱}{۲}$ ق ق

$$\frac{\frac{۱۱}{۲}}{۸} = \frac{AE + \frac{۱۱}{۲}}{۱۱ + AE} \Rightarrow \boxed{AE = ۶٫۶}$$

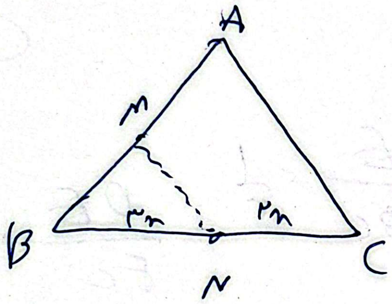
(۷)



$$\underline{\text{مستطیل}}\,\overset{S}{\circledast} = \frac{\left(\frac{x\sqrt{۳} \times ۳x}{۲}\right) \times ۲ + \frac{x^{۲}\sqrt{۳}}{۲} \times ۲}{\frac{x^{۲}\sqrt{۳}}{۲}} \to ⑧$$

$۳x \times x = AB^{۲}$ $AB = x\sqrt{۳}$

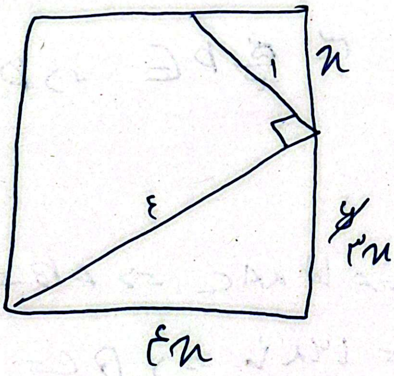
(۸)



$$\frac{\cancel{\frac{۱}{۲}} \times \cancel{۵x} \times (AM + MB) \times \cancel{\sin B}}{\cancel{\frac{۱}{۲}} \times ۳x \times BM \times \cancel{\sin B}} = ۳$$

$$\Rightarrow \frac{BM}{AM} = ۱٫۲۵$$

(۹)

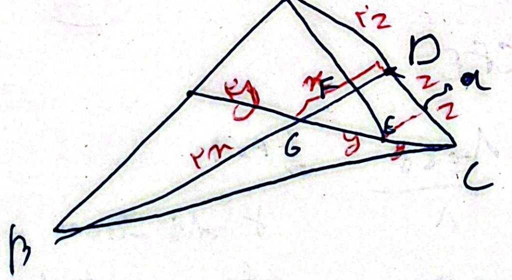


$۱۶x^{۲} + ۹x^{۲} = ۱۶$

$۲۵x^{۲} = ۱۶ \to x = \frac{۴}{۵}$

$۴x = \frac{۱۶}{۵}$ $\frac{۱۶}{۵} \times \frac{۱۶}{۵} = ۱۰٫۲۴$

(۱۰)



یک خط موازی با GD از E رسم می‌کنیم

$$\frac{FD}{Ea} = \frac{۲}{۳} \qquad \frac{Ea}{DG} = \frac{۱}{۲}$$

$$\Rightarrow \frac{FD}{DG} = \frac{۱}{۳} \Rightarrow FD = \frac{۱}{۳}x \text{ ، } BD = ۳x$$

$$\frac{BD}{FD} = ⑨$$