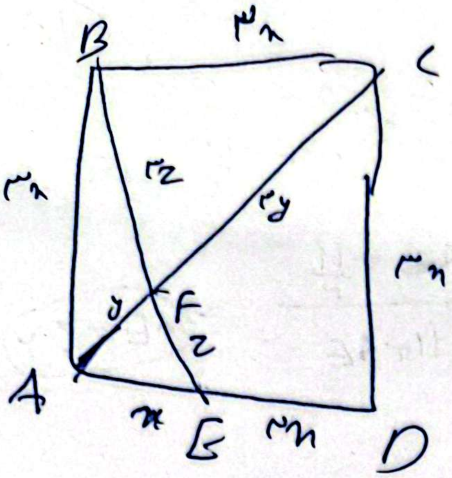
۱۹,۷۵ آفرین!

(۱)



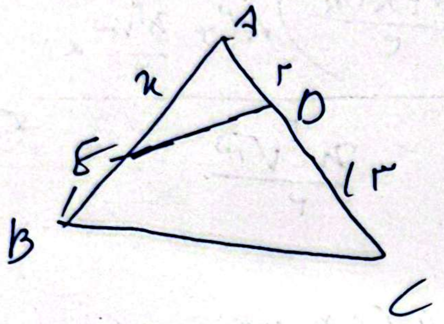
(۲)

$\sqrt{10x^2} = 4z \Rightarrow z = \frac{x\sqrt{10}}{4}$

$\sqrt{18x^2} = 3x\sqrt{2} = 4y \Rightarrow y = \frac{3x\sqrt{2}}{4}$

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

(۲)



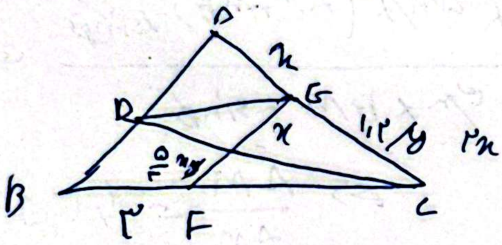
(۲)

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

$x^2 + x - 30 = (x+6)(x-5)$

$x = 5$ ✓

(۳)



(۲)

$\frac{DE}{BC} = \frac{1}{3}$ $\qquad \frac{DE}{FC} = \frac{3}{5}$

$3DE = BC \rightarrow 3DE = 3 + FC$

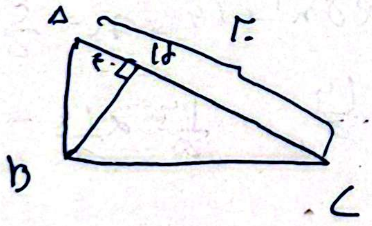
$\frac{5}{3} DE = FC$

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

$\frac{9}{4} \times 3 = \frac{27}{4} = 6{,}75$ ✓

(۴)

(۱,۷۵)

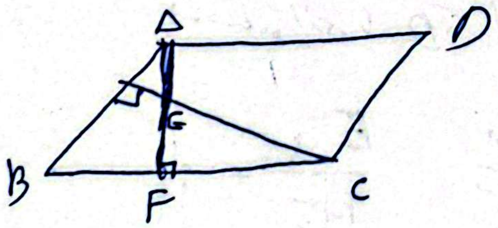


$AB^2 = 6 \times 20 \Rightarrow AB = \sqrt{120}$ ✓

$BC^2 = 14 \times 20 \Rightarrow BC = \sqrt{280}$

ثبت → ۲

(۵)



(۲)

$\triangle AFB \sim CFE$.

$\frac{6}{EF} = \frac{8+EF}{8}$ $\qquad EF = x$

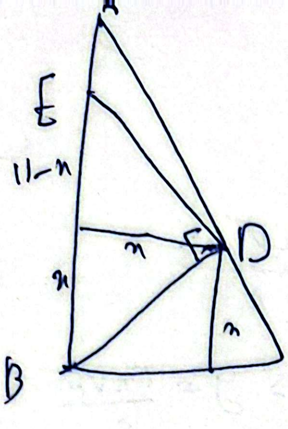
$x^2 + 8x - 48$

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

$x = 4$ ✓

$4 + 8 = 12$ ✓

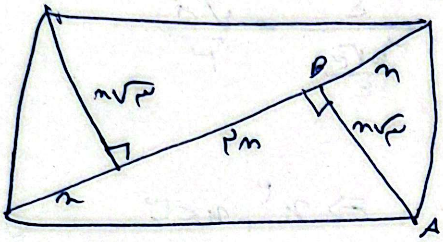
۶ — ۲



$x^2 = x(11-x)$ ⟨ $x = 0$ غ ق ق ، $x = \frac{11}{2}$ ق ق

$\frac{\frac{11}{2}}{8} = \frac{AE + \frac{11}{2}}{11 + AE} \Rightarrow AE = 6.6$ ✓

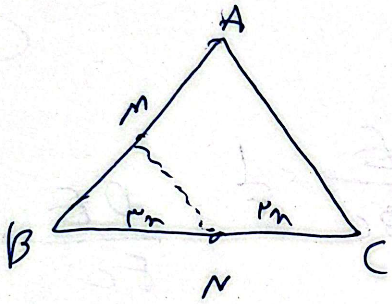
۷ — ۲



$3x \times x = AB^2 \quad AB = x\sqrt{3}$

$\frac{S_{\text{مستطیل}}}{S} = \frac{\left(\frac{x\sqrt{3} \times 3x}{2}\right) \times 2 + \frac{x^2\sqrt{3}}{2} \times 2}{\frac{x^2\sqrt{3}}{2}} = 8$ ✓

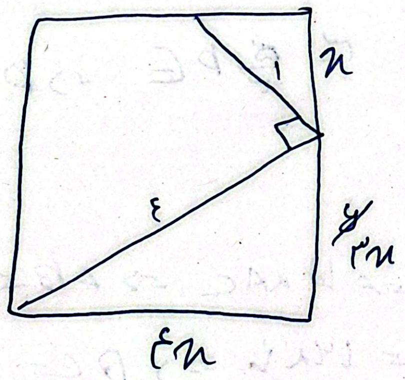
۸ — ۲



$\frac{\frac{1}{2} \times AM \times (AM+MB) \times \sin B}{\frac{1}{2} \times 3x \times BM \times \sin B} = 5$

$\Rightarrow \frac{BM}{AM} = 1.25$ ✓

۹ — ۲

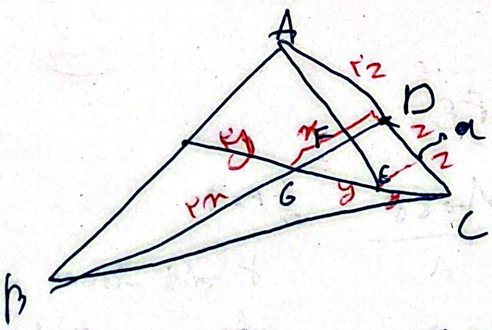


$16x^2 + 9x^2 = 16$

$25x^2 = 16 \rightarrow x = \frac{4}{5}$

$3x = \frac{12}{5}$ $\quad \frac{16}{5} \times \frac{12}{5} = 7.68$ ✓

۱۰ — ۲



یک خط موازی با GD از E رسم می‌کنیم

$\frac{FD}{Ea} = \frac{2}{3} \qquad \frac{Ea}{DG} = \frac{1}{2}$

$\Rightarrow \frac{FD}{DG} = \frac{1}{3} \Rightarrow FD = \frac{1}{3}x \,,\; BD = 3x$

$\frac{BD}{FD} = 9$ ✓