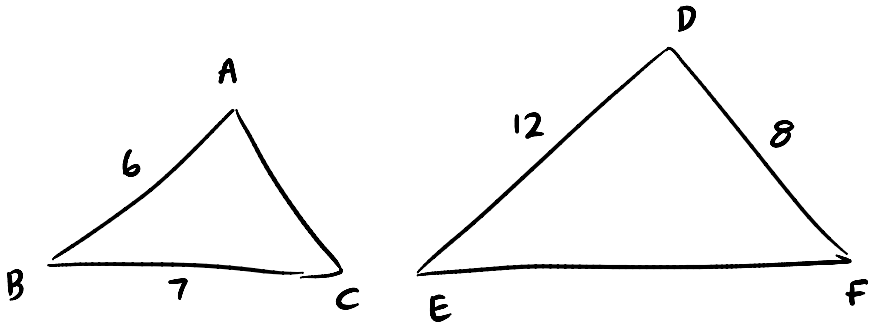
Section 8.4
p. 348: 7, 9, 11, 16, 17, 19

#7 $\triangle ABC \sim \triangle DEF$
Find: AC and EF

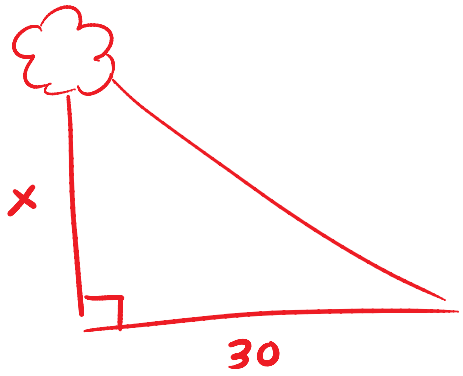


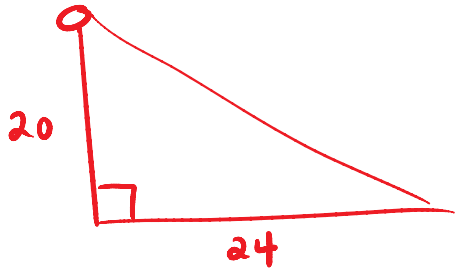
$\frac{6}{12} = \frac{AC}{8}$ $\quad \frac{6}{12} = \frac{7}{EF}$

$12AC = 48$ $\quad 6EF = 84$

$\boxed{AC = 4}$ $\quad \boxed{EF = 14}$

#9 A shadow problem: Mannertink observed that a tree was casting a 30-m shadow. A nearby flagpole was casting a 24-m shadow. If the flagpole was 20m high, how tall was the tree





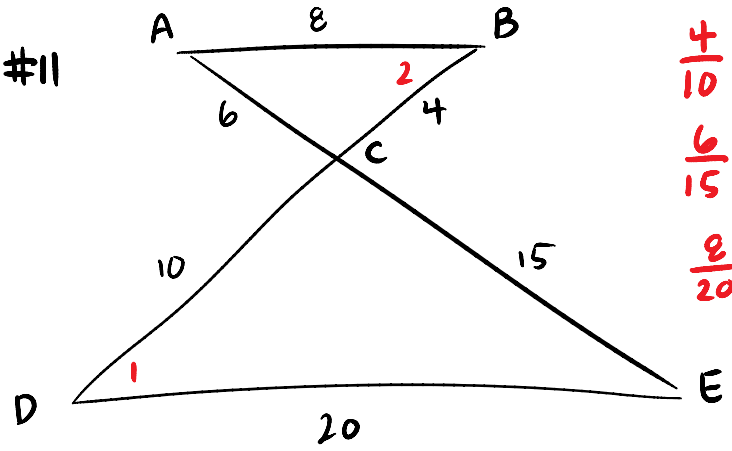
$\frac{x}{20} = \frac{30}{24}$

$\frac{x}{20} = \frac{5}{4}$

$4x = 100$

$\boxed{x = 25}$

#11



$\frac{4}{10} = \frac{2}{5}$

$\frac{6}{15} = \frac{2}{5}$

$\frac{8}{20} = \frac{2}{5}$

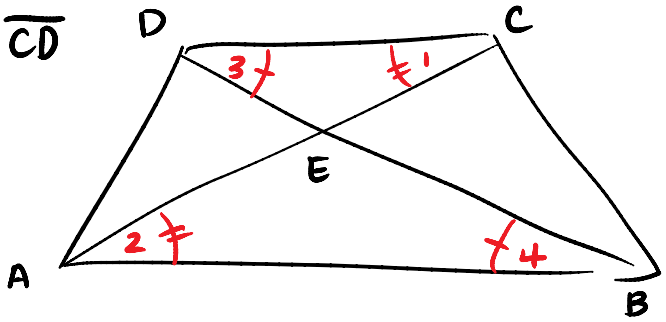
$\triangle ACB \sim \triangle ECD$

$\angle 1 \cong \angle 2$ CASTC

$\overline{AB} \parallel \overline{DE}$ If alt. int. $\angle$'s $\cong$ $\rightarrow$ $\parallel$ lines

#16 Given: Trapezoid ABCD w/ bases $\overline{AB}$ and $\overline{CD}$

Prove: $AE \cdot CD = EC \cdot AB$



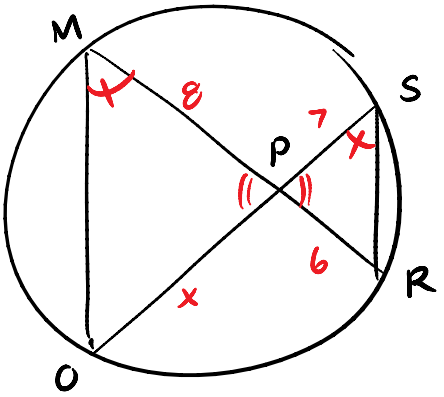
1. Trap. ABCD w/ bases $\overline{AB}$ and $\overline{CD}$	1. Given
2. $\overline{CD} \parallel \overline{BA}$	2. If trap. → bases //
3. $\angle 1 \cong \angle 2$	3. If // lines → alt. int. $\angle$s $\cong$
4. $\angle 3 \cong \angle 4$	4. If // lines → alt. int. $\angle$s $\cong$
5 $\triangle CED \sim \triangle AEB$	5. AA~
6. $\frac{AE}{EC} = \frac{AB}{CD}$	6 CSSTP
7. $AE \cdot CD = EC \cdot AB$	7. Mean Extremes Theorem

#17 $\angle M \cong \angle S$

$MP = 8$

$PR = 6$

$SP = 7$



$\frac{7}{8} = \frac{6}{x}$

$7x = 48$

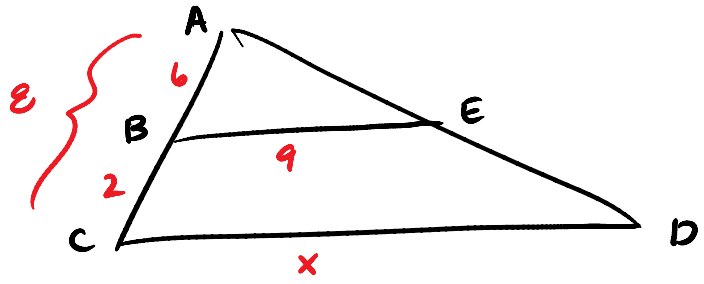
$x = \frac{48}{7}$ or $\boxed{6\frac{6}{7}}$

#19 Given: $\overrightarrow{BE} \parallel \overleftarrow{CD}$

$AB = 6$

$BC = 2$

$BE = 9$



$\frac{6}{8} = \frac{9}{x}$

$6x = 72$

$\boxed{x = 12}$