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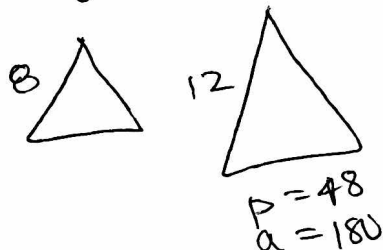
Chapter 8 Group Review

- Two similar triangles have a ratio of $\frac{3}{5}$. If the altitude of the larger triangle is 24 inches, what is the altitude of the smaller triangle?

$$\frac{3}{5} = \frac{x}{24} \rightarrow x = 14.4$$

14.4 inches

2. Two similar triangles have a pair of corresponding sides of length 12 meters and 8 meters. The larger triangle has a perimeter of 48 meters and an area of 180 square meters. Find the perimeter and area of the smaller triangle.



$$\frac{12}{8} = \frac{48}{x}$$

$$x = 32$$

per. = 32 m

$$\left(\frac{12}{8}\right)^2 = \frac{180}{x}$$

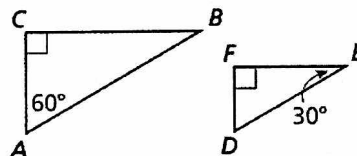
$$x = 80$$

area = 80 m²

3. Write a two-column proof.

Given: $m\angle C = m\angle F = 90^\circ$, $m\angle A = 60^\circ$ and $m\angle E = 30^\circ$

Prove: $\triangle ABC \sim \triangle DEF$

StatementsReasons

① $m\angle C = m\angle F = 90^\circ$ and,
 $m\angle E = 30^\circ$, $m\angle A = 60^\circ$

① given

⑤ $\cong \leftrightarrow \cong$

② $\angle C \cong \angle F$

② $\cong \leftrightarrow \cong$

⑥ AA ~

③ $m\angle B = 30^\circ$

⑤ $\angle B \cong \angle E$

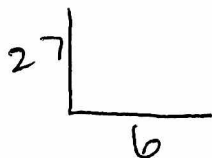
③ Δ sum thm ($\angle$ s in a Δ add to 180°)

④ $m\angle B = m\angle E$

⑥ $\triangle ABC \sim \triangle DEF$

④ trans. prop. =

4. A cellular telephone tower casts a shadow that is 72 feet long, while nearby a tree that is 27 feet tall casts a shadow that is 6 feet long. How tall is the tower?

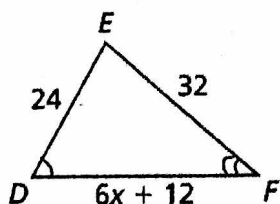
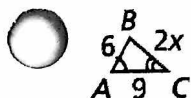


$$\frac{x}{72} = \frac{27}{6}$$

$$x = 324$$

324 ft

5. Find the value of x that makes $\triangle ABC \sim \triangle DEF$

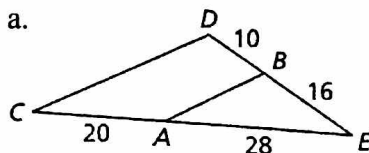


$$\frac{2x}{16} = \frac{61}{24}$$

$$16 = 4x \rightarrow$$

x = 4

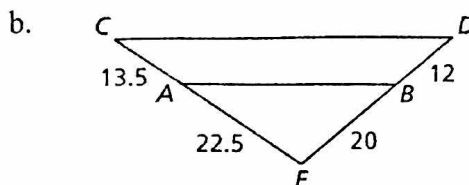
6. Decide whether $\overline{AB} \parallel \overline{CD}$. Briefly explain your answer.



$$\frac{10}{16} \stackrel{?}{=} \frac{20}{28}$$

Not $\parallel$

$$280 \neq 320$$



$$\frac{22.5}{13.5} \stackrel{?}{=} \frac{20}{12}$$

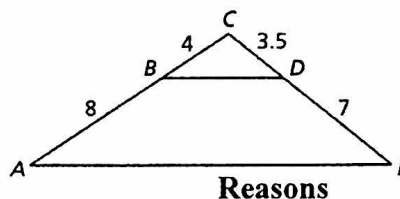
yes $\parallel$

$$270 = 270$$

7. Write a two-column proof. **hint: use the Triangle Proportionality Theorem (or its converse)****

Given: the diagram

Prove: $\triangle CBD \sim \triangle CAE$



Statements

Reasons

① $CB = 4$, $BA = 8$, $CD = 3.5$
and $DE = 7$

① given

② $\frac{CB}{BA} = \frac{CD}{DE}$ ($\frac{4}{8} = \frac{3.5}{7} = \frac{1}{2}$)

② corresp. side ratios

③ $\overline{BD} \parallel \overline{AE}$

③ $\triangle$ prop. Thm converse
(sides proportional $\rightarrow \parallel$ segments)

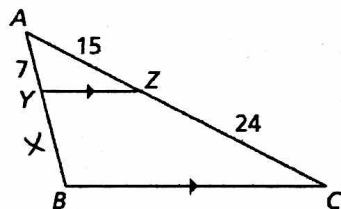
④ $\angle A \cong \angle CBD$, $\angle E \cong \angle CDB$

④ $\parallel \rightarrow$ corresp. $\angle$ s $\cong$

⑤ $\triangle CBD \sim \triangle CAE$

⑤ AA $\sim$

8. Find YB. Then find AB.



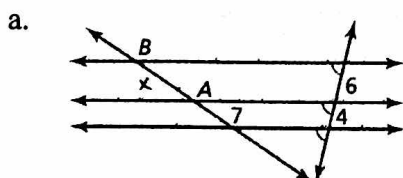
$$\frac{x}{7} = \frac{24}{15}$$

$$x = 11.2$$

$$YB = 11.2$$

$$AB = 18.2$$

9. Find AB.

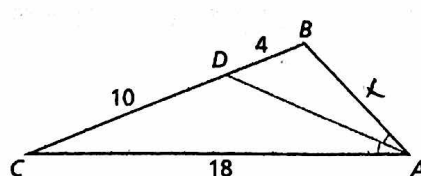


$$\frac{x}{7} = \frac{6}{4}$$

$$x = 10.5$$

$$AB = 10.5$$

b.



$$\frac{4}{10} = \frac{x}{18}$$

$$x = 7.2$$

$$AB = 7.2$$