1) Solve for x: $\frac{x}{18} = \frac{3}{7}$

$7x = 54$

$x \approx 7.7$

2) Two squares had side lengths of 8 and 10.
What is the ratio of their perimeters?

$P = 32$ $P = 40$

$32:40$
$\Rightarrow 4:5$
(after we divide by 8)

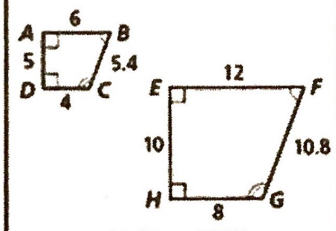
3) A flag pole that is 81 feet tall breaks in a ratio of 4:5. What is the length of the shorter section of the flag pole?

total; part, part; $4+5=9=$ total

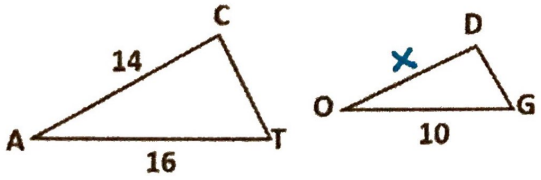
$\frac{\text{part}}{\text{total}} = \frac{\text{part}}{\text{total}}$ $\frac{x}{81} = \frac{4}{9}$ ← shorter

$9x = 324$
$x = 36\text{ ft}$

Similar Polygons

DEFINITION	DIAGRAM	STATEMENTS
Two polygons are **similar polygons** if and only if their corresponding angles are congruent and their corresponding side lengths are proportional.	 $ABCD \sim EFGH$	$\angle A \cong \angle E$ $\angle B \cong \angle F$ $\angle C \cong \angle G$ $\angle D \cong \angle H$ $\frac{AB}{EF} = \frac{BC}{FG} = \frac{CD}{GH} = \frac{DA}{HE} = \frac{1}{2}$

4) If $\Delta CAT \sim \Delta DOG$, find DO.

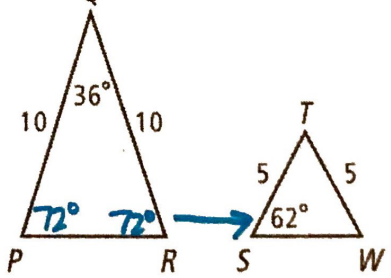


$\frac{14}{16} = \frac{x}{10}$ or $\frac{x}{14} = \frac{10}{16}$

either set-up work

$16x = 140$
$x = 8.75$

5) Are the triangles similar?



$72° \neq 62°$

Similar Δ's require $\cong \angle$'s

not similar

PROPORTIONS CHALLENGE!

1) Solve for x: $\frac{8}{x+7} = \frac{2}{x+1}$

$8(x+1) = 2(x+7)$

$8x+8 = 2x+14$

$6x = 6$

$\boxed{x = 1}$

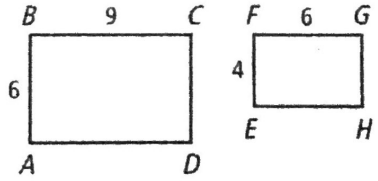
2) A stick that is 40 ft. long is cut into two parts in the ratio of 7:3. What is the length of the longer part?

$\frac{x}{40} = \frac{7}{10}$

$10x = 280$

$x = \boxed{28 \text{ ft}}$

3) Are the following rectangles similar?

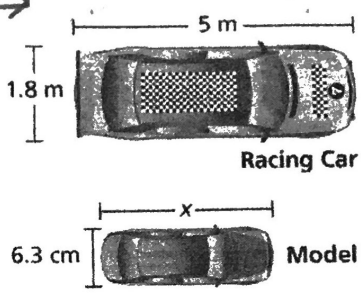


$\frac{6}{9} \stackrel{?}{=} \frac{4}{6}$

$\frac{2}{3} = \frac{2}{3}$ ✓

$\boxed{\text{yes}}$

4) What is the length of the model car to the nearest tenth?



$\frac{1.8}{5} = \frac{6.3}{x}$

$1.8x = 31.5$

$x = \boxed{17.5 \text{ cm}}$

* It is OK that the units are different b/c they will cancel & leave cm.

5) The ratio of the measures of a quadrilateral is 2:3:4:5. If the perimeter is 112 feet, what is the length of each side?

$2x+3x+4x+5x = 14x$

$14x = 112$

$x = 8$

not sure I'd do this problem in 5th/6th

$2(8) = 16 \quad 3(8) = 24 \quad 4(8) = 32 \quad 5(8) = 40$

$\boxed{16 \text{ ft}, 24 \text{ ft}, 32 \text{ ft}, 40 \text{ ft}}$