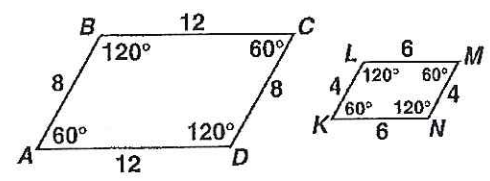


Reteaching 5-5

Similar Figures and Proportions

Similar polygons have congruent corresponding angles and corresponding sides that are in proportion. The symbol \sim means *is similar to*.

Example: Is parallelogram $ABCD \sim$ parallelogram $KLMN$?



- ① Check corresponding angles.
- ② Compare corresponding sides.

$$\angle A \cong \angle K, \angle B \cong \angle L, \angle C \cong \angle M, \text{ and } \angle D \cong \angle N$$

$$\frac{AB}{KL} = \frac{8}{4} = \frac{2}{1} \quad \frac{BC}{LM} = \frac{12}{6} = \frac{2}{1}$$

$$\frac{CD}{MN} = \frac{8}{4} = \frac{2}{1} \quad \frac{DA}{NK} = \frac{12}{6} = \frac{2}{1}$$

Corresponding angles are congruent. Corresponding sides are in proportion. The parallelograms are similar.

You can use proportions to find unknown lengths in similar figures.

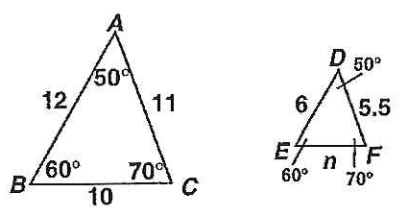
- ① To find EF , use a proportion.
- ② Substitute.
- ③ Use cross products.
- ④ Solve.

$$\frac{AB}{DE} = \frac{BC}{EF} \quad \triangle ABC \sim \triangle DEF$$

$$\frac{12}{6} = \frac{10}{n}$$

$$12n = 60$$

$$n = 5$$



$EF = 5$

Tell whether each pair of polygons is similar. Explain why or why not.

1.
 No $\frac{8}{4} = \frac{6}{4}$
 $32 \neq 24$

2.
 Same shape different size
 Yes $\frac{6}{12} = \frac{4.5}{9}$
 $54 = 54$
 Corr. $\angle s \cong$

3.
 No $\angle 105 \neq \angle 120$

Exercises 4-6 show pairs of similar polygons. Find the unknown length.

4.
 skip

5.
 $\frac{n}{3} = \frac{15}{5}$
 $5x = 45$
 $x = 9 \text{ units}$

6.
 $\frac{n}{6} = \frac{5}{10}$
 $10n = 30$