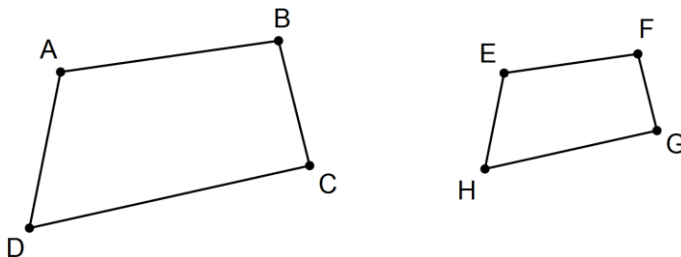**SM 2** | **Objective: Similarity notes**

Congruent Figures: Same shape and same size

Similar Figures: Same shape

If two polygons are similar, then:
- Their **corresponding angles are congruent.**

- The lengths of their **corresponding sides are proportional.**
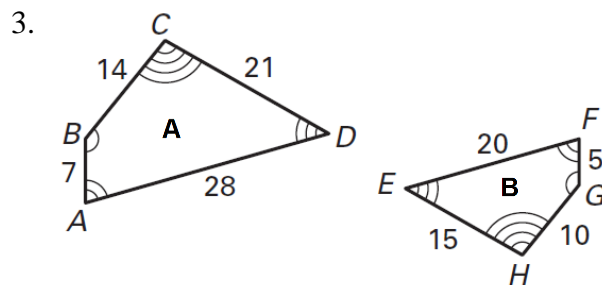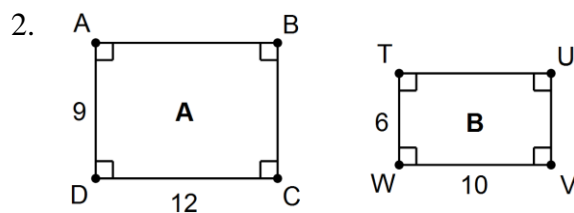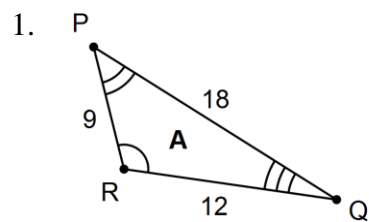
Examples:

Similarity Statement:
$ABCD \sim EFGH$

1. List all pairs of congruent angles.   2. Write a *statement of proportionality* for the sides.
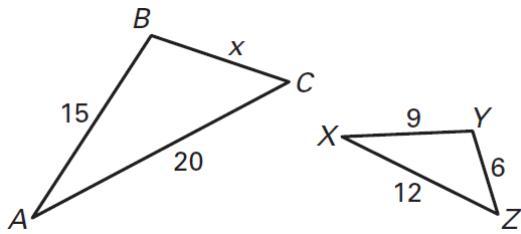
Scale Factor: The **ratio of the lengths** of two corresponding sides in similar polygons.

Examples: Decide whether each set of figures are similar. If they are similar, write a similarity statement and find the scale factor of Figure B to Figure A.
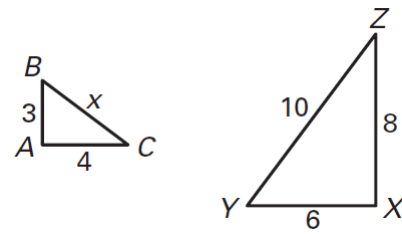
1.

2.

3.

Examples: $\triangle ABC \sim \triangle XYZ$. Find the value of x.
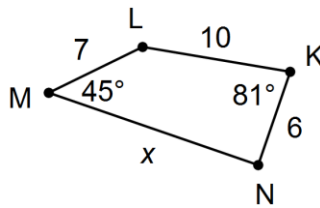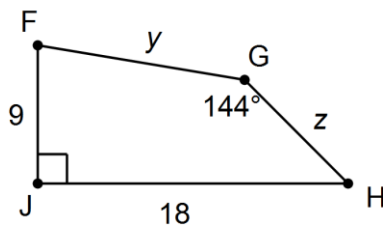
1.

2.

Examples: In the diagram below, $FGHJ \sim KLMN$.

1. List all pairs of congruent angles.

2. Write a statement of proportionality.

3. Find $m\angle F$.   4. Find $m\angle H$.   5. Find $m\angle L$.   6. Find $m\angle N$.

7. Find the value of x.   8. Find the value of y.   9. Find the value of z.

Examples:
1. A 6.5 ft. tall car standing next to an adult elephant casts a 33.2 ft. shadow. If the adult elephant casts a shadow that is 51.5 ft. long, then how tall is the elephant?

2. A telephone booth that is 8 ft. tall casts a shadow that is 4 ft. long. Find the height of a nearby lawn ornament that casts a 2 ft. shadow.