(18)

3:5:7   450

$3x + 5x + 7x = 450$

$15x = 450$

$\boxed{x = 30}$

$3(30) : 5(30) : 7(30)$

$\boxed{90 \quad : 150 : 210}$

(16)   Sculp : dog   2:3

$\frac{s}{d}$

$\frac{2}{3} = \frac{14}{x}$ $2x = 42$

$\boxed{x = 21}$

Name_____

I can Set up proportions
            and translations

Similar Triangles   Similar Pentagons   Similar Quadrilaterals

Unit 10 Day 2
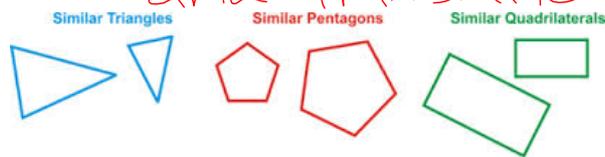
# Similar Polygons

Translation

Slide
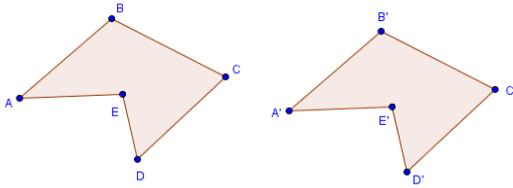
Indicate direction

and distance

# Rotation

Turn
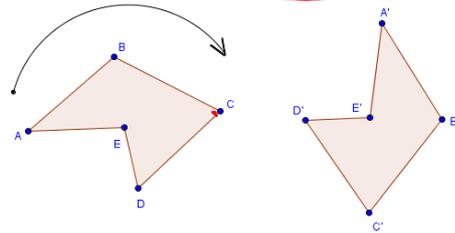
Indicate direction

and point
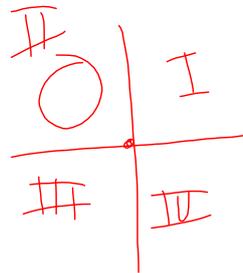
Reflection
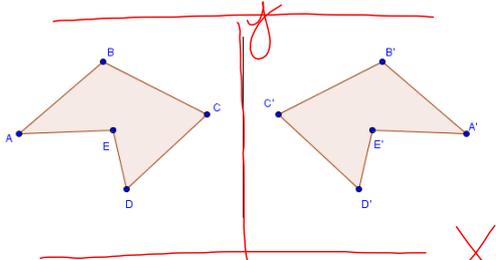
Indicate axis

(over the x or y)

Dialation
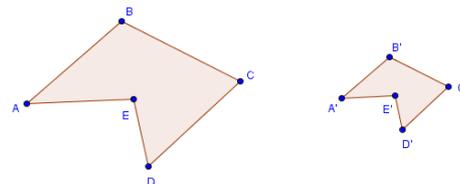
Indicate reduction

or enlargement and
scale factor

Here are 8 polygons. Transform each polygon into the 5x5 grid below it according to the directions given.

(1)   (2)   (3)   (4)
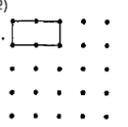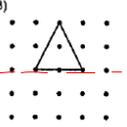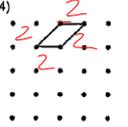
rotate & dilate   rotate &   reflect   translate &
scale factor 2   translate   dilate (SF 2)
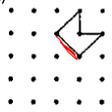
(5)   (6)   (7)   (8)
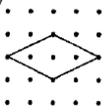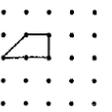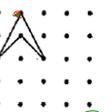
reflect & dilate   rotate   dilate (SF 2) &   dilate (SF 2)
scale factor 2   translate   & rotate

Your choice: tell which original you are transforming, and describe the transformation.

5.51 x 8.50 in

Similar polygons: Two polygons are similar if corresponding angles are congruent and corresponding sides are proportional.

Given ABCD ∼ WXYZ

∠ A   ∠ W

∠ B   ∠ X

∠ C   ∠ Y

∠ D   ∠ Z
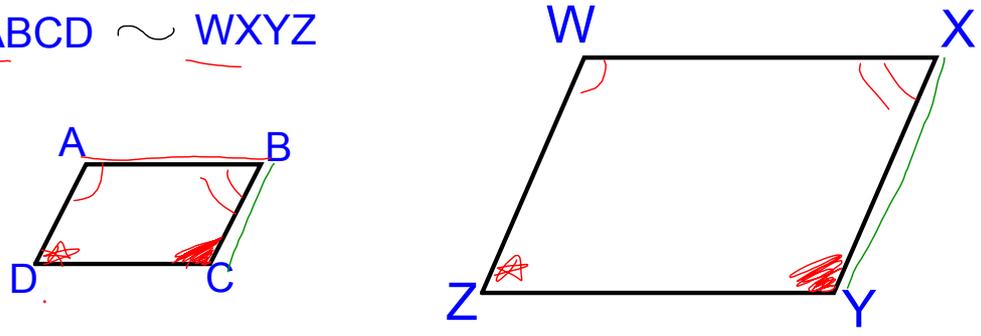
Congruent

$$\frac{AB}{WX} = \frac{BC}{XY} = \frac{CD}{YZ} = \frac{AD}{WZ}$$

3

$\triangle ABC \sim \triangle DEF$

Write four true proportions.
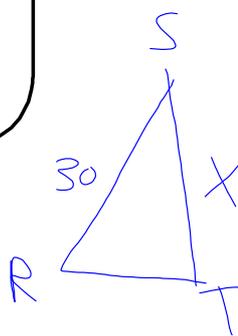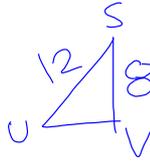
$$\frac{9}{12} = \frac{x}{8}$$

$$\frac{12}{8} = \frac{9}{x}$$

$$\frac{8}{x} = \frac{12}{9}$$

Triangle with vertices B, A, C: side BA = 12, side AC = 8.
Triangle with vertices E, D, F: side ED = 9, side DF = x.

Find the missing side.

Trapezoid with 12, ?, 24 and trapezoid with 15, 25

$$\frac{12}{15} = \frac{?}{25}$$

$X = 20$

$\triangle SUV \sim \triangle SRT$

Find ST and VT

Triangle S–U–V with SU = 12, SV = 8, U–V connected; lower part with R, T; 18 along R side, 12 along VT, X = 20.

$$\frac{12}{8} = \frac{30}{x}$$

$X = 20$

Triangle S, U = 12, V = 8, below 18, 12, R, T

S, 30, X, R, T

Find x, y, and z.

$\triangle BDE \sim \triangle BAC$

Triangle B, D, E: BE = 18, BD = y, DE = 12

Triangle B, A, C: BA = x, AC = 24, z = 16

Large figure: B at top, 18 to E, D with 12 to E, 6 to C, y, x, D 3 A, z 16, $12 = $

$$\frac{z}{12} = \frac{24}{18}$$

$\boxed{z = 16}$

$$\frac{y}{x} = \frac{18}{24}$$
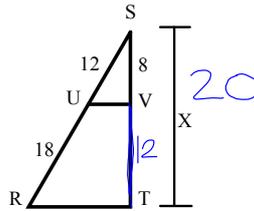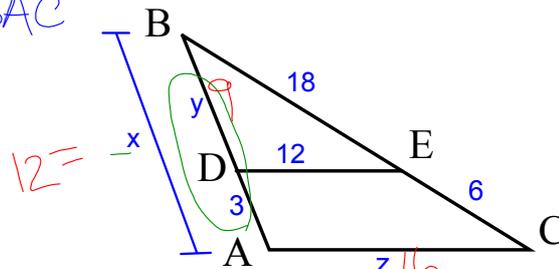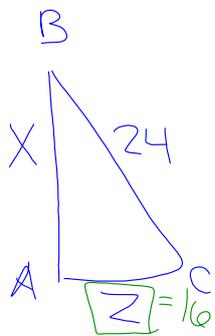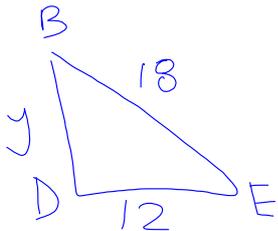
$$\frac{y}{3+y} = \frac{18}{24}$$

$$18(3+y) = 24y$$

$$\boxed{y = 9}$$

If two polygons are similar, then the ratio of the lengths of two corresponding sides is called the scale factor.
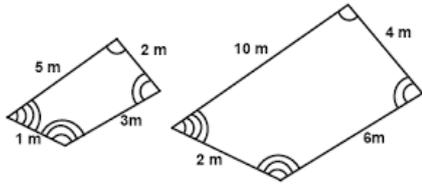
Name the scale factor.

5:10 or 2:4

3:6 or 1:2

Given LMNO ∼ QRST find the scale factor and the value of x and y.
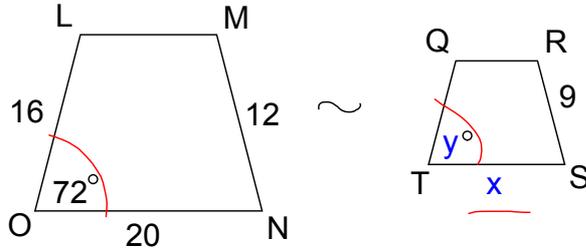
$y = 72°$

$\dfrac{x}{20} = \dfrac{9}{12}$

$x = 15$

If two polygons are similar, then the ratio of their perimeters is equal to the ratio of their corresponding sides.

△ABC ∼ △XYZ

Find the perimeter of △XYZ.

$\dfrac{a}{8} = \dfrac{36}{12}$

P = 36

$a = 24$

Practice

A
6
B

scale factor from A to B = 1 : 2

A   6   B   ?

scale factor from A to B = 2 : 7
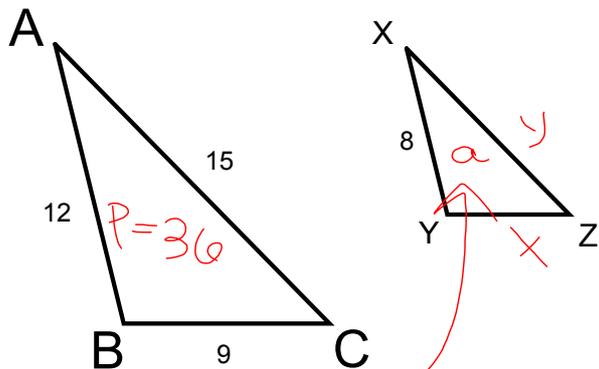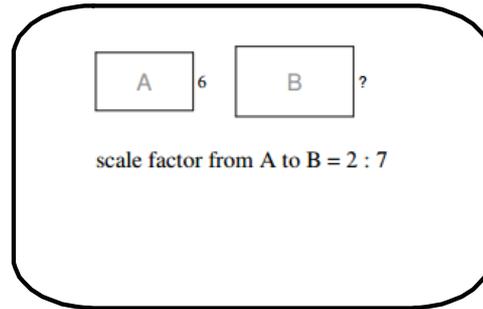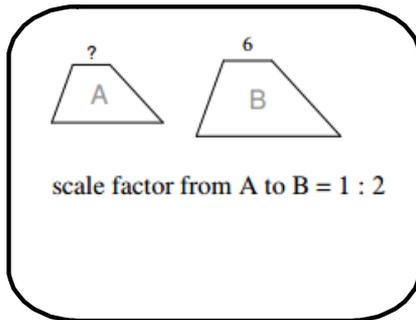
A rectangle has a length of 4 feet and a perimeter of 14. What is the perimeter of a similar rectangle with a width of 9 feet?