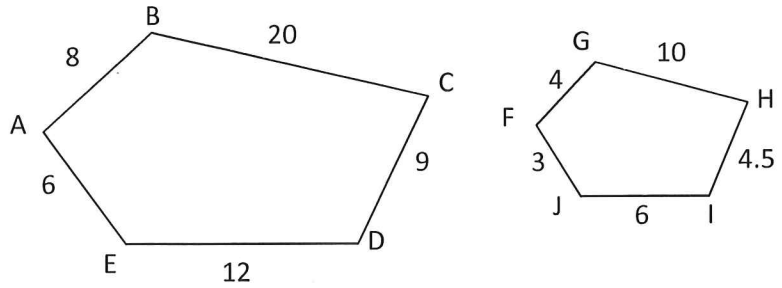
7.1 Similar Polygons Homework Name Key

1. Given ABCDE ~ FGHIJ.



List the corresponding sides in the form of ratios. The first has been done for you.

$\frac{AB}{FG} = \frac{BC}{GH} = \frac{CD}{HI} = \frac{DE}{IJ} = \frac{EA}{JF}$

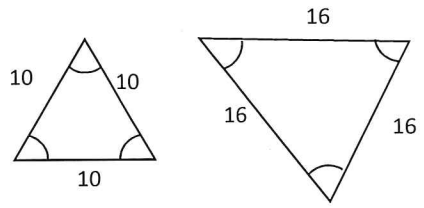
List the congruent angles. The first has been done for you.

$\angle A \cong \angle F$ $\angle B \cong \angle G$ $\angle C \cong \angle H$ $\angle D \cong \angle I$ $\angle E \cong \angle J$

Find the scale factor of ABCDE to FGHIJ. $\frac{10}{20} = \frac{1}{2}$

Are the polygons below similar? Explain why or why not. If so, what is the scale factor from the larger to smaller polygon?

2.



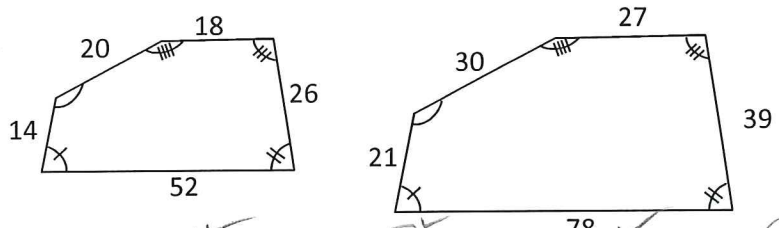
$\frac{10}{16} = \frac{5}{8}$

Similar / Not Similar (circle one)

Reason: Ratios are proportional & Angles are congruent

Scale factor of larger to smaller: 5/8

3.



$\frac{20}{30} = \frac{2}{3}$ $\frac{18}{27} = \frac{2}{3}$ $\frac{26}{39} = \frac{2}{3}$ $\frac{52}{78} = \frac{2}{3}$ $\frac{14}{21} = \frac{2}{3}$

Similar / Not Similar (circle one)

Reason: Ratios are proportional & Angles are $\cong$

Scale factor of larger to smaller: $\frac{2}{3}$

For #4 and 5, use the similarity statement to find the missing information.

4.

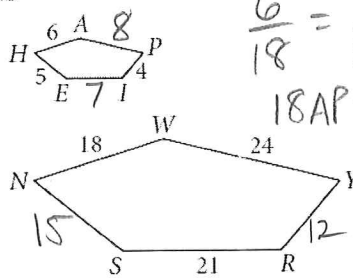
HAPIE ~ NWYRS

$AP =$ 8

$EI =$ 7

$SN =$ 15

$YR =$ 12



$\frac{6}{18} = \frac{AP}{24}$

$18AP = (6)(24)$

$\frac{18AP}{18} = \frac{144}{18}$

$AP = 8$

5.

$\overline{QUAD} \sim \overline{SIML}$

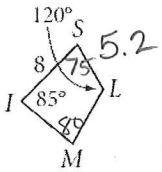
$SL =$ 5.2

$MI =$ 10

$m\angle D =$ 120

$m\angle U =$ 85

$m\angle A =$ 80

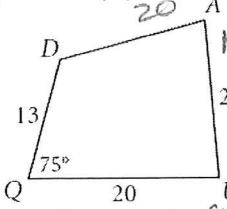


$\frac{MI}{25} = \frac{8}{20}$

$20MI = (8)(25)$

$\frac{20MI}{20} = \frac{200}{20}$

$MI = 10$



$\frac{SL}{13} = \frac{8}{20}$

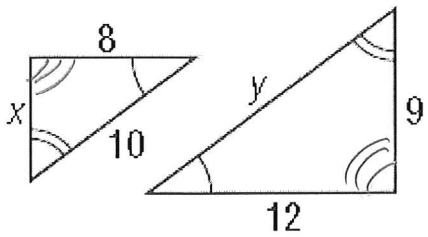
$20SL = (8)(13)$

$\frac{20SL}{20} = \frac{104}{20}$

$SL = 5.2$

The polygons below are similar. Solve for the missing variable(s).

6.



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

$\frac{12x}{12} = \frac{72}{12}$

$x = 6$

$\frac{10}{y} = \frac{8}{12}$

$8y = (10)(12)$

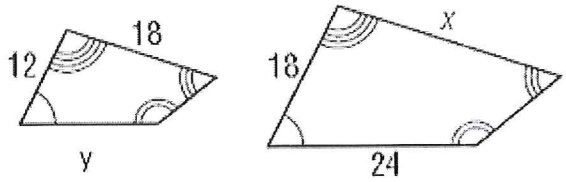
$\frac{8y}{8} = \frac{120}{8}$

$y = 15$

x = 6

y = 15

7.



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

$18y = (24)(12)$

$\frac{18y}{18} = \frac{288}{18}$

$y = 16$

$\frac{18}{x} = \frac{12}{18}$

$12x = (18)(18)$

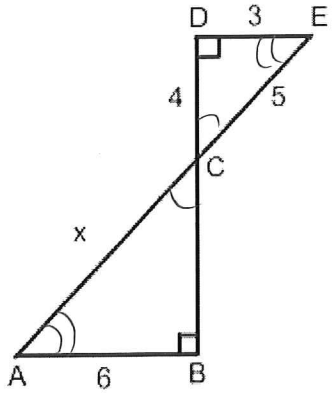
$\frac{12x}{12} = \frac{324}{12}$

$x = 27$

x = 27

y = 16

8. In the diagram below, $\Delta ABC \sim \Delta EDC$.



$\frac{3}{6} = \frac{1}{2}$

$\frac{5}{x} = \frac{3}{6}$

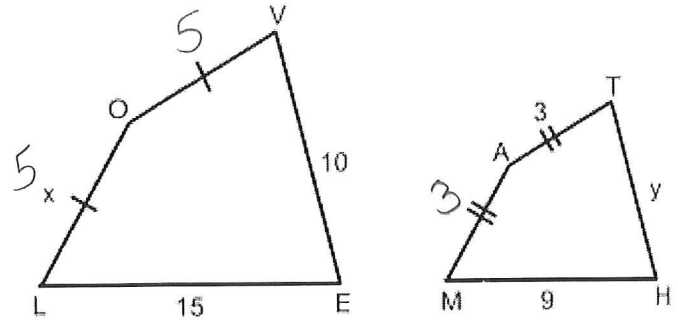
$3x = 30$

$x = 10$

Scale Factor of ABC to EDC : $\frac{1}{2}$

x = 10

9. In the diagram below, $LOVE \sim MATH$.



$\frac{9}{15} = \frac{3}{5}$

$\frac{9}{15} = \frac{3}{x}$

$9x = (15)(3)$

$\frac{9x}{9} = \frac{45}{9}$

$x = 5$

Scale Factor of LOVE to MATH: $\frac{3}{5}$

$\frac{y}{10} = \frac{3}{5}$

$\frac{5y}{5} = \frac{30}{5}$

x = 5

y = 6