Geometry Chapter 6 Review   Name **Key**

1)

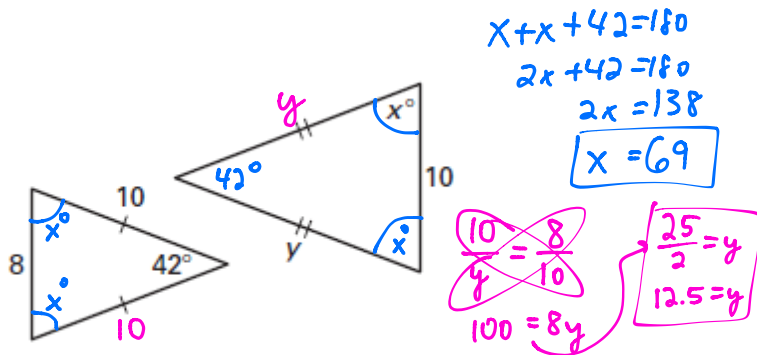**Given:** $\dfrac{LJ}{JN} = \dfrac{MK}{KP}$, find JN.

$\dfrac{8}{x} = \dfrac{14}{6}$

$48 = 14x$

$\dfrac{24}{7} = x \approx 3.43$

2) The quadrilaterals below are similar. Write the similarity statement and scale factor.

$RUTS \sim LONM$

$3 : 2.4$ or $\dfrac{3}{2.4} \cdot \dfrac{.5}{.5} = \dfrac{15 \div 3}{12 \div 3}$

$= \dfrac{5}{4}$
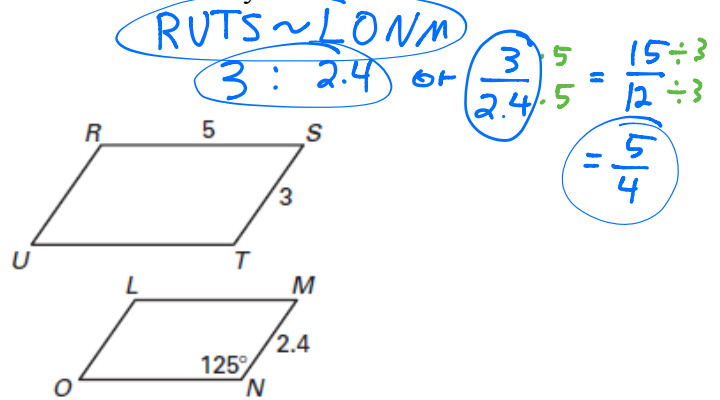
3) The two polygons are similar. Solve for x and y.

$x + x + 42 = 180$

$2x + 42 = 180$

$2x = 138$

$\boxed{x = 69}$

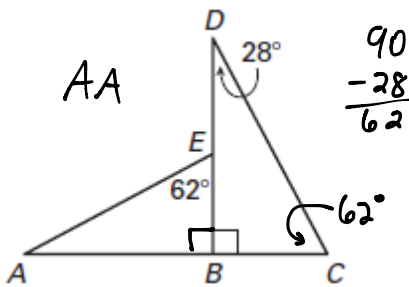$\dfrac{10}{y} = \dfrac{8}{10} \rightarrow \dfrac{25}{2} = y$

$100 = 8y \qquad 12.5 = y$

4. Complete the similarity statement for the similar triangles below. Explain why the triangles are similar. $\Delta GWK \sim \Delta$ **FWM**
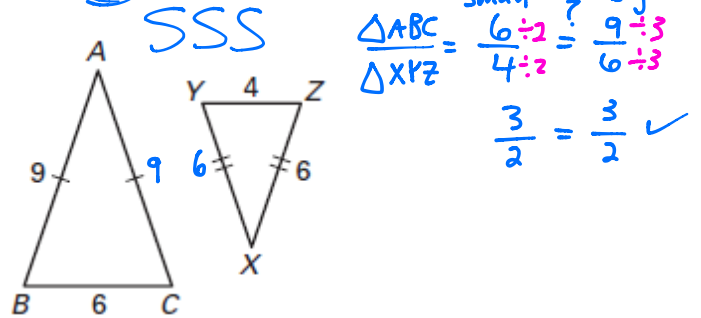
$\triangle$'s similar by AA

Vertical

103°   103°
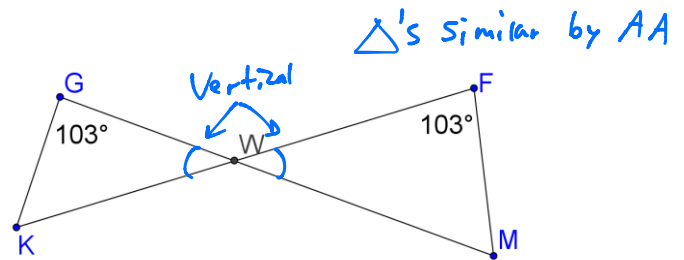
Is it possible to prove the triangles similar? Circle "yes" or "no" to answer. **Explain your reasoning.**

5)   (Yes) or No
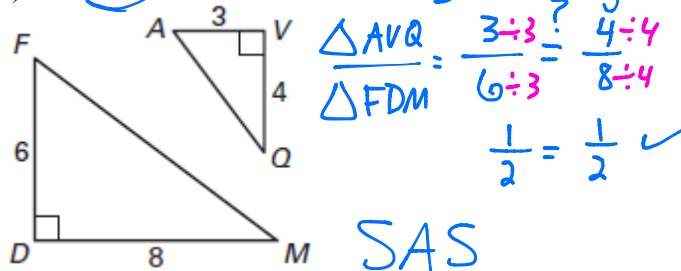
AA

28°

90
−28
62

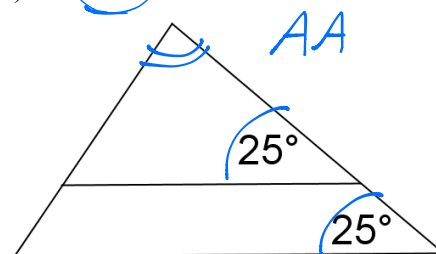62°

⌐62°

6)   (Yes) or No

SSS

$\dfrac{\triangle ABC}{\triangle XYZ} = \dfrac{6 \div 2}{4 \div 2} \overset{?}{=} \dfrac{9 \div 3}{6 \div 3}$

$\dfrac{3}{2} = \dfrac{3}{2}$ ✓

7)   (Yes) or No

small   big

$\dfrac{\triangle AVQ}{\triangle FDM} = \dfrac{3 \div 3}{6 \div 3} \overset{?}{=} \dfrac{4 \div 4}{8 \div 4}$

$\dfrac{1}{2} = \dfrac{1}{2}$ ✓

SAS

8)   (Yes) or No

AA

25°

25°

9) Yes or No   SSS

$\frac{\triangle DEF}{\triangle GHJ} = $ small $\frac{3\div 3}{6\div 3}$? med $\frac{4\div 4}{8\div 4}$ = big $\frac{5\div 5}{10\div 5}$

$\frac{1}{2} = \frac{1}{2} = \frac{1}{2}$ ✓

E 3 4
D 5 F

G
6
J
8 H
10

10) Yes or No   SAS

T   U
4   6
9   S 6
R   V

$\frac{\triangle STU}{\triangle SVR} = $ small $\frac{4\div 2}{6\div 2}$? = big $\frac{6\div 3}{9\div 3}$

$\frac{2}{3} = \frac{2}{3}$ ✓

11) There are triangles below that are similar. Find the value of the variable.

14   16   12
11
x   13

$\frac{x}{12} = \frac{16}{11}$

$11x = 192$

$x = \frac{192}{11} = 17.\overline{45}$

12) Solve for x

7
5
x
14

7
x

12
14

$\frac{7}{12} = \frac{x}{14}$

$98 = 12x$

$x = \frac{98 \div 2}{12 \div 2}$

$x = \frac{49}{6} = 8.1\overline{6}$

13) $\triangle YTK \sim \triangle NMG$. Determine the length of $\overline{GN}$.

G
x
K
3 4
3.5 T
N
7
M
Y

$\frac{x}{3} = \frac{7}{4}$

$\frac{4x}{4} = \frac{21}{4}$

$x = \frac{21}{4} = 5.25$

14) Use the given information to determine whether $\overline{BC} \parallel \overline{DE}$. Justify your answer.

A
6 4
D E
9 6
B C

$\frac{6\div 2}{4\div 2}$? = $\frac{9\div 3}{6\div 3}$

$\frac{3}{2} = \frac{3}{2}$ ✓

yes $\overline{BC} \parallel \overline{DE}$ because the sides are divided proportionally

15) Solve for AG and ED.

A
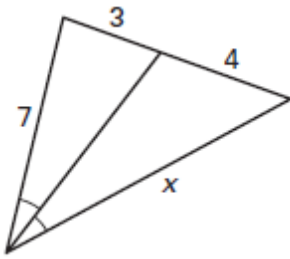x 3
G
6 2 B
4
F
C
3
E y D
10

$\frac{x}{3} = \frac{6}{4}$

$\frac{4x}{4} = \frac{18}{4}$

$x = \frac{18 \div 2}{4 \div 2}$

$x = \frac{9}{2} = 4.5$

$\frac{2}{y} = \frac{3}{10}$

$\frac{20}{3} = \frac{3y}{3}$

$y = \frac{20}{3} = 6.\overline{6}$

x 3
2
y
10

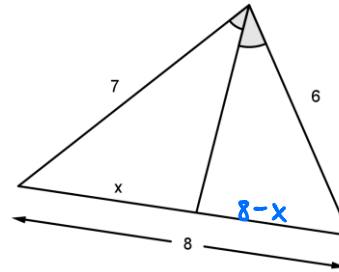Solve for the variable.

16)

$$\frac{x}{7} = \frac{4}{3}$$

$$3x = 28$$

$$\frac{3x}{3} = \frac{28}{3}$$

$$\boxed{x = \frac{28}{3} = 9.\overline{3}}$$

17)

$$\frac{x}{7} = \frac{8-x}{6}$$

$$6x = 7(8-x)$$

$$6x = 56 - 7x$$

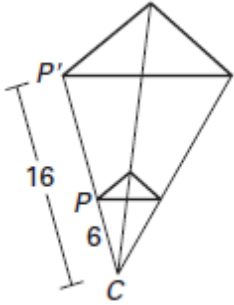$$+7x \qquad +7x$$

$$\overline{13x = 56}$$

$$\frac{13x}{13} = \frac{56}{13}$$

$$\boxed{x = \frac{56}{13} = 4.3\overline{07691}}$$

Each of the following is a dilation from figure P to figure P'. Give the scale factor of the dilation.
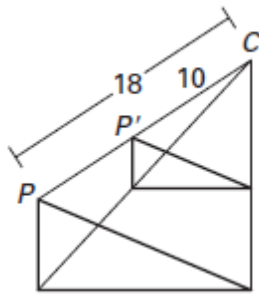
18) scale factor: __8:3__

original · scale factor = new

$$6 \cdot x = 16$$

$$x = \frac{16 \div 2}{6 \div 2}$$

$$\boxed{x = \frac{8}{3} = 2.\overline{6}}$$
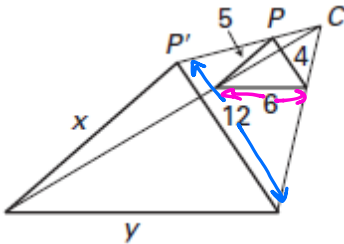
19) scale factor: __5:9__

original · scale factor = new

$$18 \cdot x = 10$$

$$x = \frac{10 \div 2}{18 \div 2}$$

$$\boxed{x = \frac{5}{9} = 0.\overline{5}}$$

20) The diagram is a dilation. Find x and y.

$$\frac{x}{5} = \frac{12}{4}$$

$$\frac{4x}{4} = \frac{60}{4}$$
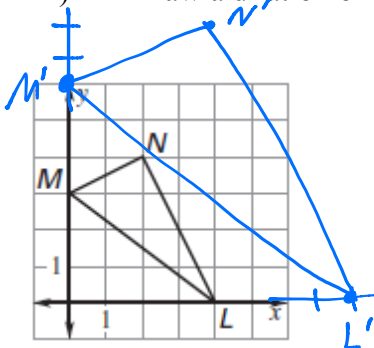
$$\boxed{x = 15}$$

$$\frac{y}{6} = \frac{12}{4}$$

$$\frac{4y}{4} = \frac{72}{4}$$

$$\boxed{y = 18}$$

21) Draw a dilation of the polygon with the given vertices using the scale factor k = 2.

$$M' = (0,3) \cdot 2 = (0,6)$$

$$N' = (2,4) \cdot 2 = (4,8)$$

$$L' = (4,0) \cdot 2 = (8,0)$$