1) Given: \( \frac{LJ}{JN} = \frac{MK}{KF} \), find \( JN \).

\[ \frac{14}{48} = \frac{14x}{24} \]

\[ 48 = 14x \]

\[ x = \frac{48}{14} \approx 3.43 \]

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

\[ \triangle RUTS \sim \triangle LONM \]

\[ \frac{3}{2.4} \]

\[ \frac{3}{2.4} \cdot \frac{5}{3} = \frac{15}{6} \]

\[ \frac{5}{4} \]

3) The two polygons are similar. Solve for \( x \) and \( y \).

\[ x + x + 42 = 180 \]

\[ 2x = 138 \]

\[ 2x = 138 \]

\[ x = 69 \]

4) Complete the similarity statement for the similar triangles below. Explain why the triangles are similar.

\[ \triangle GWK \sim \triangle _____ \]

Is it possible to prove the triangles similar? Circle “yes” or “no” to answer. **Explain your reasoning.**

5) Yes or No

6) Yes or No

7) Yes or No

8) Yes or No
9) Yes or No

\[ \frac{\triangle DEF}{\triangle GHI} = \frac{3 \times 3}{6 \times 3} = \frac{3}{6} = \frac{1}{2} \]
\[ b_1: b_2 = \frac{3}{6} = \frac{1}{2} \]

10) Yes or No

\[ \frac{\triangle STU}{\triangle SUR} = \frac{4 \times 2}{6 \times 2} = \frac{4}{6} = \frac{2}{3} \]
\[ b_1: b_2 = \frac{2}{3} \]

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

\[ \frac{x}{12} = \frac{16}{11} \]
\[ 11x = 192 \]
\[ x = \frac{192}{11} \approx 17.45 \]

12) Solve for x

\[ \frac{x}{12} = \frac{7}{14} \]
\[ 9x = 12x \]
\[ x = \frac{4}{12} = \frac{1}{3} \]
\[ x = \frac{49}{6} \approx 8.16 \]

13) \( \triangle YTK \sim \triangle NMG \). Determine the length of \( GN \).

\[ \frac{x}{3} = \frac{7}{4} \]
\[ 4x = 21 \]
\[ x = \frac{21}{4} = 5.25 \]

14) Use the given information to determine whether \( BC \parallel DE \). Justify your answer.

\[ \frac{a}{4} = \frac{9}{6} \]
\[ \frac{3}{2} = \frac{3}{2} \]

15) Solve for \( AG \) and \( ED \).
Solve for the variable.

16) \[
\frac{X}{7} = \frac{\frac{4}{3}}{3} = \frac{1}{3}
\]

\[
3x = 2\frac{8}{3} \quad \Rightarrow \quad x = \frac{2\frac{8}{3}}{3} = 9.3
\]

17) \[
\frac{X}{7} = \frac{8-x}{6}
\]

\[
6x = 7(8-x) \quad \Rightarrow \quad 6x = 56-7x + 7x \quad \Rightarrow \quad 13x = \frac{56}{13}
\]

\[
x = \frac{56}{13} \approx 4.30769
\]

Each of the following is a dilation from figure P to figure P’. Give the scale factor of the dilation.

18) Scale factor: \(\frac{8}{3}\)

19) Scale factor: \(\frac{5}{9}\)

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

\[
\frac{x}{5} = \frac{12}{4} \quad \Rightarrow \quad 4x = 60 \quad \Rightarrow \quad x = 15
\]

\[
\frac{y}{4} = \frac{12}{4} \quad \Rightarrow \quad 4y = 72 \quad \Rightarrow \quad y = 18
\]

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

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

\[
N' = (2,4) \cdot 2 = (4,8)
\]

\[
L' = (4,8) \cdot 2 = (8,16)
\]