The polygons in each pair are similar. Find the missing side length. Show your work.

1)
\[
\frac{25}{x} = \frac{30}{36}
\]
\[30x = 900\]
\[x = 30\]

2)
\[
\frac{x}{9} = \frac{35}{21}
\]
\[21x = 315\]
\[x = 15\]

3)
\[
\frac{x}{12} = \frac{40}{24}
\]
\[24x = 480\]
\[x = 20\]

4)
\[
\frac{x}{28} = \frac{18}{24}
\]
\[24x = 504\]
\[x = 21\]
6) \[ \frac{30}{25} = \frac{x}{20} \]
\[ 25x = 600 \]
\[ x = 24 \]

7) \[ \frac{4}{5} = \frac{32}{x} \]
\[ 4x = 160 \]
\[ x = 40 \]

8) \[ \frac{2}{3} = \frac{8}{x} \]
\[ 2x = 24 \]
\[ x = 12 \]

scale factor from A to B = 2 : 3

9) \[ \frac{1}{2} = \frac{5}{x} \]
\[ x = 10 \]

scale factor from A to B = 1 : 2

10) \[ \frac{5}{6} = \frac{x}{30} \]
\[ 6x = 150 \]
\[ x = 25 \]

scale factor from A to B = 5 : 6

11) \[ \frac{2}{3} = \frac{16}{x} \]
\[ 2x = 48 \]
\[ x = 24 \]

scale factor from A to B = 2 : 3

12) \[ \frac{1}{2} = \frac{7}{x} \]
\[ x = 14 \]

scale factor from A to B = 1 : 2
The polygons in each pair are similar. Find the missing side length. Show your work.

1) \[
\frac{29.5}{x} = \frac{35}{21}
\]
\[\begin{align*}
21x &= 630 \\
x &= 30
\end{align*}\]

2) \[
\frac{10}{15} = \frac{x}{12}
\]
\[\begin{align*}
15x &= 120 \\
x &= 8
\end{align*}\]

3) \[
\frac{16}{x} = \frac{11.6}{24}
\]
\[\begin{align*}
24x &= 288 \\
x &= 12
\end{align*}\]

4) \[
\frac{x}{4} = \frac{12}{6}
\]
\[\begin{align*}
ox &= 4x \\
x &= 8
\end{align*}\]

5) \[
\frac{x}{18} = \frac{10}{15}
\]
\[\begin{align*}
15x &= 180 \\
x &= 12
\end{align*}\]

6) \[
\frac{x}{8} = \frac{15}{10}
\]
\[\begin{align*}
10x &= 120 \\
x &= 12
\end{align*}\]
7) 
\[
\text{scale factor from A to B = } 5 : 6
\]
\[
\frac{5}{6} = \frac{35}{x}
\]
\[
5x = 210
\]
\[
x = 42
\]

9) 
\[
\text{scale factor from A to B = } 2 : 5
\]
\[
\frac{2}{5} = \frac{x}{40}
\]
\[
5x = 80
\]
\[
x = 16
\]

11) 
\[
\text{scale factor from A to B = } 1 : 2
\]
\[
\frac{1}{2} = \frac{3}{x}
\]
\[
x = 6
\]

8) 
\[
\text{scale factor from A to B = } 1 : 2
\]
\[
\frac{1}{2} = \frac{5}{x}
\]
\[
x = 10
\]

10) 
\[
\text{scale factor from A to B = } 1 : 2
\]
\[
\frac{1}{2} = \frac{4}{x}
\]
\[
x = 8
\]

12) 
\[
\text{scale factor from A to B = } 1 : 6
\]
\[
\frac{1}{6} = \frac{x}{48}
\]
\[
6x = 48
\]
\[
x = 8
\]