

# 6.1 PRACTICE

Draw the following. Mark the congruent angles!

1. $\triangle ABC \sim \triangle DEF$	2. $\square DORK \sim \square FEST$	3. Kite $SULY \sim$ Kite $TIME$
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ANSWERS MAY VARY!!

The polygons are similar. Find the missing length.

7.	8.	9.	10.
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$$\frac{42}{35} = \frac{24}{x}$$

$$42x = 840$$

$$\frac{840}{42} = \frac{840}{42}$$

x = 20

$$\frac{6}{24} = \frac{4}{x}$$

$$6x = 96$$

$$\frac{96}{6} = \frac{96}{6}$$

x = 16

$$\frac{30}{x} = \frac{18}{24}$$

$$18x = 720$$

$$\frac{720}{18} = \frac{720}{18}$$

x = 40

$$\frac{25}{15} = \frac{x}{9}$$

$$15x = 225$$

$$\frac{225}{15} = \frac{225}{15}$$

x = 15

The following triangles are similar. Fill in the blank (order is important). Find the scale factor.

4.	5.	6.
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$\triangle EFG \sim \triangle ABC$

Scale Factor =  $\frac{10}{7}$  or  $\frac{7}{10}$

$\triangle GFE \sim \triangle GMN$

Scale Factor =  $\frac{40}{90}$  or  $\frac{56}{126}$

0.4 or 2.25

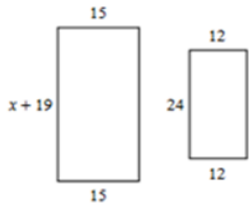
$\triangle VUT \sim \triangle VBA$

Scale Factor =  $\frac{13}{91}$  or  $\frac{14}{98}$

0.143 or 7

The following polygons are similar. Find x.

11.



$$\frac{x+19}{24} = \frac{15}{12}$$

$$360 = 12(x+19)$$

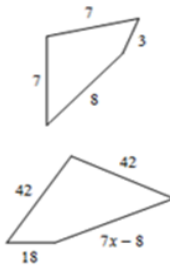
$$360 = 12x + 228$$

$$\begin{array}{r} 360 \\ -228 \\ \hline 132 \end{array} = \frac{12x}{12}$$

$$\frac{132}{12} = \frac{12x}{12}$$

$$11 = x$$

12.



$$\frac{3}{18} = \frac{8}{7x-8}$$

$$144 = 3(7x-8)$$

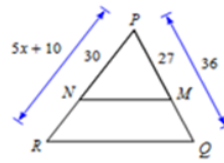
$$144 = 21x - 24$$

$$\begin{array}{r} 144 \\ +24 \\ \hline 168 \end{array} = \frac{21x}{21}$$

$$\frac{168}{21} = \frac{21x}{21}$$

$$8 = x$$

13.



$$\frac{30}{5x+10} = \frac{27}{36}$$

$$27(5x+10) = 1080$$

$$135x + 270 = 1080$$

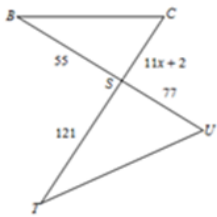
$$\begin{array}{r} 135x + 270 \\ -270 \\ \hline 135x = 810 \end{array}$$

$$\frac{135x}{135} = \frac{810}{135}$$

$$x = 6$$

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14.



$$\frac{11x+2}{77} = \frac{55}{121}$$

$$121(11x+2) = 4235$$

$$1331x + 242 = 4235$$

$$\begin{array}{r} 1331x + 242 \\ -242 \\ \hline 1331x = 3993 \end{array}$$

$$\frac{1331x}{1331} = \frac{3993}{1331}$$

$$x = 3$$

15.



$$\frac{4}{x^2} = \frac{1}{x+3}$$

$$4(x+3) = x^2$$

$$4x + 12 = x^2$$

$$\begin{array}{r} 4x + 12 \\ -4x \\ \hline 12 = x^2 - 4x \end{array}$$

$$12 = x^2 - 4x$$

$$\begin{array}{r} 12 \\ -12 \\ \hline 0 = x^2 - 4x - 12 \end{array}$$

$$0 = x^2 - 4x - 12$$

$$0 = (x+2)(x-6)$$

$$x = -2 \text{ or } 6$$

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16.



$$\frac{3}{x} = \frac{x}{2x+9}$$

$$x^2 = 3(2x+9)$$

$$x^2 = 6x + 27$$

$$\begin{array}{r} x^2 = 6x + 27 \\ -6x \quad -6x \\ \hline x^2 - 6x = 27 \end{array}$$

$$x^2 - 6x = 27$$

$$\begin{array}{r} x^2 - 6x = 27 \\ -27 \quad -27 \\ \hline x^2 - 6x - 27 = 0 \end{array}$$

$$x^2 - 6x - 27 = 0$$

$$(x+3)(x-9) = 0$$

$$x = -3$$

$$x = 9$$

$$3 \cdot 9 = 27$$