Show work for each of the following.

1. Two supplementary angles are in the ratio of 4:11. Find the measure of each angle.

2. The vertex angle of an isosceles triangle is three times as large as the base angles. Find the measure of all three angles.

Find the value of x.

3. $\dfrac{3}{5} = \dfrac{x}{4}$

4. $\dfrac{x+5}{4} = \dfrac{2}{3}$

5. $\dfrac{9}{4x+6} = \dfrac{7}{6x-4}$

6. Which proportions are equivalent to $\dfrac{x}{12} = \dfrac{3}{4}$?

[A] $\dfrac{x}{3} = \dfrac{12}{4}$

[B] $\dfrac{x}{4} = \dfrac{12}{3}$

[C] $\dfrac{12}{x} = \dfrac{4}{3}$

[D] $\dfrac{x+12}{12} = \dfrac{7}{4}$
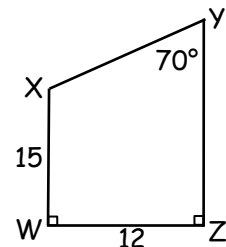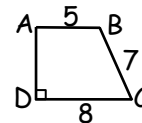
[E] $\dfrac{x}{4} = \dfrac{3}{12}$

[F] $\dfrac{x+3}{16} = \dfrac{3}{4}$

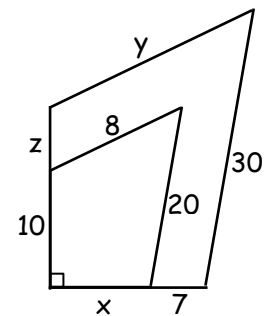[G] $\dfrac{3}{x} = \dfrac{4}{12}$

[H] $\dfrac{3}{12} = \dfrac{4}{x}$

In questions 7-11, ABCD ~ WXYZ.

7. What is the scale factor of ABCD to WXYZ?

8. Find $m\angle A$

9. Find $m\angle B$

10. Find YZ

11. Find AD

12. Two similar polygons are shown.
    Find the value of each variable using proportions.

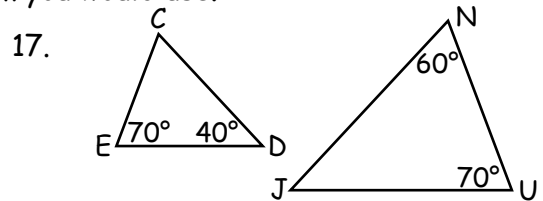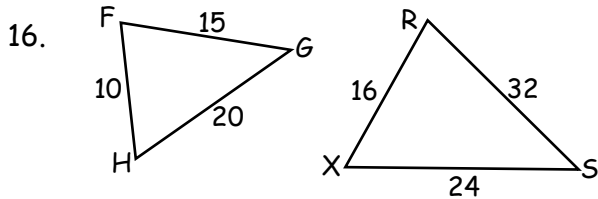| Scale Factor ____:____	x	y	z
Proportion & Work			
Value			

State each of the following. Draw and label a diagram to illustrate each.

13. Postulate for
        Similar Triangles

14. Theorem #1 for
        Similar Triangles

15. Theorem #2 for
        Similar Triangles

Can the two triangles shown be proved similar? If so, name the two triangles using a similarity statement and tell which similarity postulate or theorem you would use.

16.

F, 15, G, 10, 20, H

R, 16, 32, X, 24, S

17.

C, E/70° 40°\D, J

N, 60°, 70° U

Determine the scale factor and find the value of each variable using proportions.

18.

4
12 x 12
Y 15

Scale Factor: ____ : ____
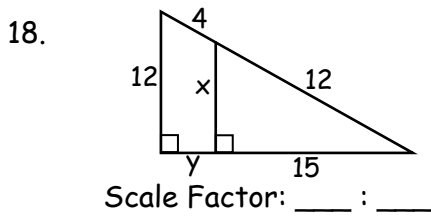
18.	Proportion & Work	Value
x		
y		

19.

4 y
6
2 x 3

Scale Factor: ____ : ____
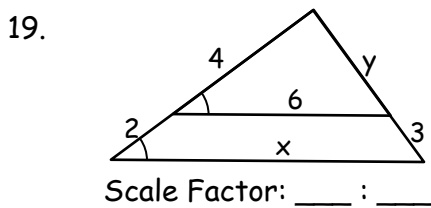
19.	Proportion & Work	Value
x		
y		

Find the value of x using a proportion.

20.

14, 21, 8, x

21.

5x 3x
15 4x
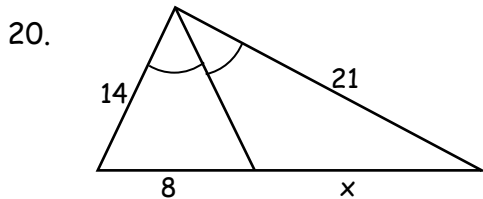
20.	Proportion & Work	Value
x		

21.	Proportion & Work	Value
x		