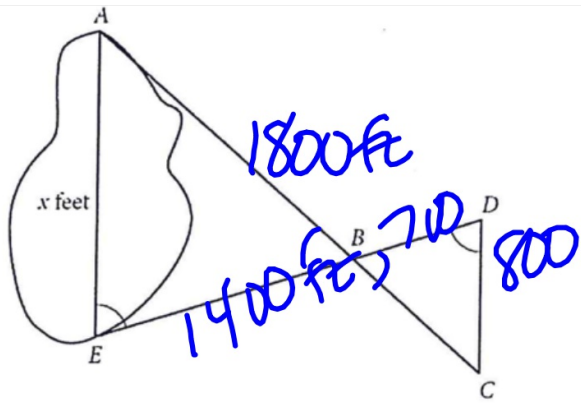


1.)



$$\frac{x}{800} = \frac{1400}{700}$$

$$700x = 1120,000$$

$$x = 1600 \text{ ft}$$

A summer camp counselor wants to find a length, x , in feet, across a lake as represented in the sketch above. The lengths represented by AB , EB , BD , and CD on the sketch were determined to be 1800 feet, 1400 feet, 700 feet and 800 feet, respectively. Segments AC and DE intersect at B , and $\angle AEB$ and $\angle CDB$ have the same measure. What is the value of x ?

2.) If $(ax + 2)(bx + 7) = 15x^2 + cx + 14$ for all values of x , and $a + b = 8$, what are the two possible values for c ?

$$(3x+2)(5x+7)$$

$$21x + 10x$$

$$= 31x$$

$$(5x+2)(3x+7)$$

$$41x$$

A) 3 and 5

B) 6 and 35

C) 10 and 21

D) 31 and 41

3.) For what value of n is $|n - 1| + 1$ equal to 0?

A) 0

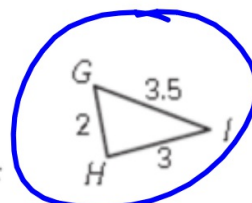
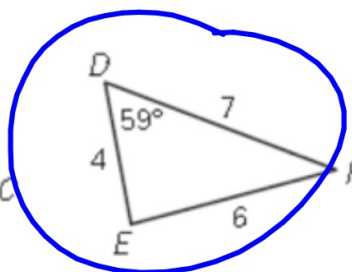
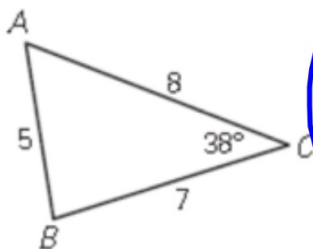
B) 1

C) 2

D) There is no such value of n .

$$|n - 1| + 1 = 0$$
$$|n - 1| = -1$$

4.)



$$\frac{4}{2} = \frac{7}{3.5} = \frac{6}{3}$$

Determine which two of the three given triangles are similar. Find the scale factor for the pair.

2 SSS~

Questions 1 – 3 are multiple choice. Circle the correct answer for each.

1. If $\frac{a}{12} = \frac{b}{6}$, complete the following statement: $\frac{b}{a} = \frac{?}{?}$

[A] $\frac{12}{6}$

[B] $\frac{6}{12}$

[C] $\frac{a}{12}$

[D] $\frac{6}{b}$

2. If $\frac{a}{12} = \frac{b}{6}$, complete the following statement: $\frac{6}{12} = \frac{?}{?}$

[A] $\frac{a}{6}$

[B] $\frac{b}{12}$

[C] $\frac{a}{b}$

[D] $\frac{b}{a}$

3. If $\frac{x}{y} = \frac{5}{8}$, which one of the following statements will *not* be true.

[A] $8x = 5y$

[B] $\frac{x}{8} = \frac{5}{y}$

[C] $\frac{x+y}{y} = \frac{5+8}{8}$

[D] $\frac{x}{5} = \frac{y}{8}$

Fill in the right-hand side of the second proportion.

4. If $\frac{y}{x} = \frac{3}{5}$, then $\frac{5}{x} = \frac{3}{y}$

5. If $\frac{a}{b} = \frac{5}{9}$, then $\frac{a+b}{b} = \frac{5+9}{9}$

6. The door in a room is 8 ft. tall. An architect's model of the same door is 2 in. high. What is the ratio of the height of the model to the real height?

$$\frac{2 \text{ in}}{8 \text{ ft} \times 12} = \frac{2 \text{ in}}{96 \text{ in}}$$
$$= \frac{1}{48} \text{ in}$$

Solve each proportion.

7. $\frac{4}{8} = \frac{m}{22}$

$$m = 11$$

8. $\frac{x}{7.5} = \frac{12}{2.5}$

$$x = 36$$

$$9. \frac{y}{y+2} = \frac{3}{4}$$

$$3y + 6 = 4y$$

$$y = +6$$

$$10. \frac{x-1}{3} = \frac{15}{9}$$

$$9x - 9 = 45$$

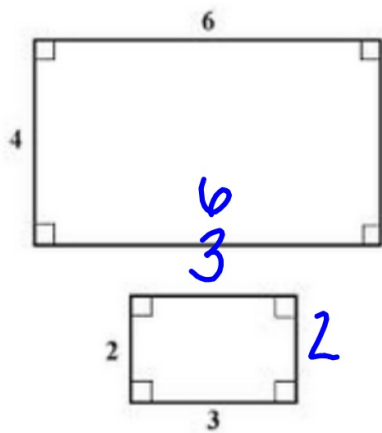
$$x = 6$$

Use the similarity statement to complete the statements below: $\triangle ABC \sim \triangle LMO$.

$$11. m\angle C = m\angle \underline{O}$$

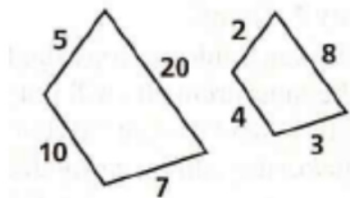
$$12. \frac{AC}{LO} = \frac{BC}{\underline{MO}}$$

13. Are the polygons below similar? Explain why or why not.



(1) All \angle s are \cong
 (2) $\frac{6}{3} = \frac{4}{2} \checkmark$

14. Are the polygons below similar? Explain why or why not.



NO.
 Sides weren't prop.

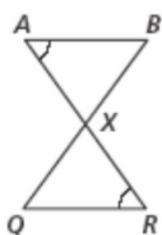
15. The scale on a map is 1 in. = 120 mi. If two cities are $6\frac{1}{2}$ in. apart on the map, what is the actual distance in miles?

$$\frac{1 \text{ in}}{120 \text{ mi}} = \frac{6.5 \text{ in}}{x \text{ mi}}$$

$$x = 780 \text{ mi}$$

Explain why the triangles below are similar: AA~, SAS~, or SSS~. Show any work necessary to explain your reasoning below the triangles. Then write a similarity statement. If they are not similar, then put "no" and leave the next two lines blank.

16.



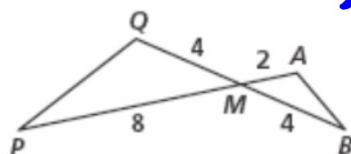
Yes

Similar? Yes

Reason: AA~

Similarity statement: $\triangle ABX \sim \triangle RQX$

17.



$$\frac{4}{2} = \frac{8}{4}$$

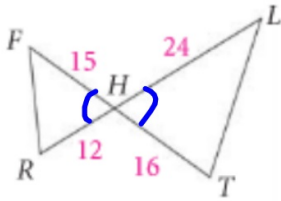
Yes

Similar? Yes

Reason: SAS~

Similarity statement: $\triangle PQM \sim \triangle BAM$

18.



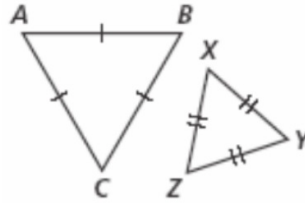
$$\frac{15}{16} \neq \frac{12}{24}$$

Similar? NO

Reason: _____

Similarity statement: _____

19.



Similar? SSS~ yes

Reason: _____

Similarity statement: $\triangle ABC \sim \triangle ZYX$

The triangles below are similar. Find the value of the variables.

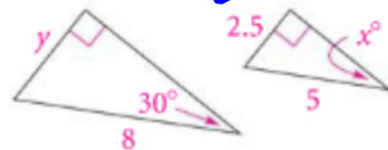
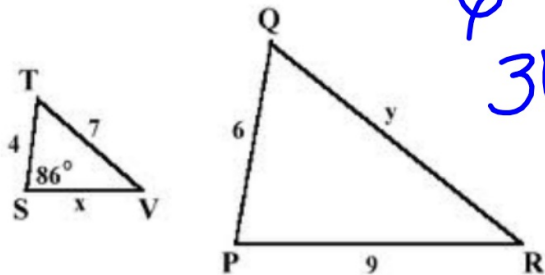
20. $x = \underline{6}$
 $y = \underline{10.5}$

$$\frac{4}{6} = \frac{x}{9}$$

$$36 = 6x$$

21. $x = \underline{30}$
 $y = \underline{4}$

$$\frac{8}{5} = \frac{y}{2.5}$$



$$\frac{m+3}{4} = \frac{11}{m-4}$$

$$m^2 = 4m + 3m - 12$$

$$m^2 - 1m - 12 = 44$$

$$m^2 - m - 56 = 0$$

$$(m-8)(m+7)=0$$

$$m=8, -7$$