Name: _____
BRING THESE NOTES TO CLASS EVERY DAY!

UNIT 10: SIMILARITY

Topics covered:
- Determine similar figures
- Write similarity statements
- Identify similar triangles
- Use proportions to find values of similar figures

Unit 10 Assignments

Assignment #	Section	Page #, Problem #	Date Assigned	Date Due
19	Proportions 11.1	P 579 # 2, 4, 5-12 P 586 7-12		
20	11.2	P 591 # 1-4, 19-21		
21	11.3	P 599 # 1-3 P 6.4 # 1-7		
22		To be announced		
		Similarity Study Guide		

Proportions Review:

Solve the following proportions using "cross multiplication."

1) $\dfrac{x}{6} = \dfrac{8}{3}$

2) $\dfrac{y}{7} = \dfrac{2y}{6}$

3) $\dfrac{7}{5} = \dfrac{x+1}{-2}$

4) $\dfrac{(2y-3)}{5} = \dfrac{1}{3}$

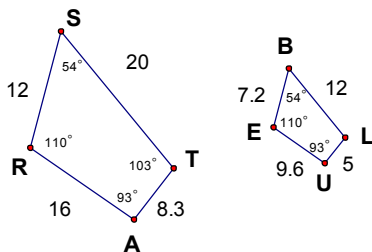5) $\dfrac{2}{z+1} = -\dfrac{4}{z+2}$

Similarity (11.1)

*What does it mean for figures to be **similar**?*

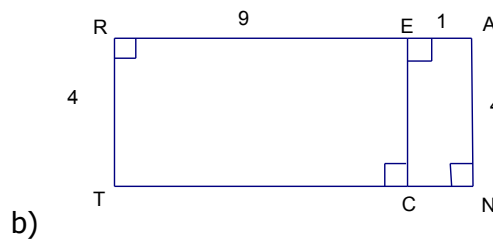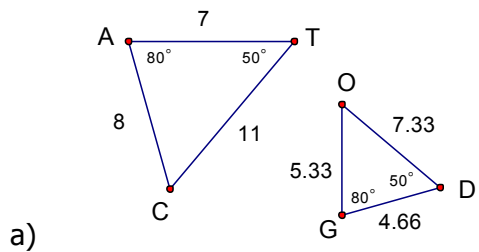*What is the difference between similar and congruent?*

Def: Dilation

Ex.

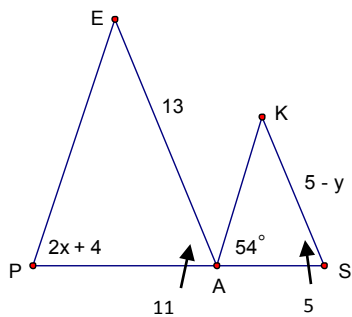The similarity statement is _____

Name congruent angles:

Name proportional segments:

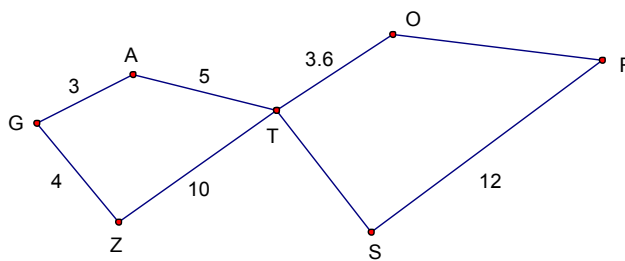What is the similarity ratio/scale factor?

Ex. Identify which of the following figures are similar. If the figures are similar write the similarity statement.

a)

b)

Ex. $\triangle PEA \sim \triangle AKS$. Find the values of x and y.

Ex. $GATZ \sim TORS$. Find the perimeter of TORS.

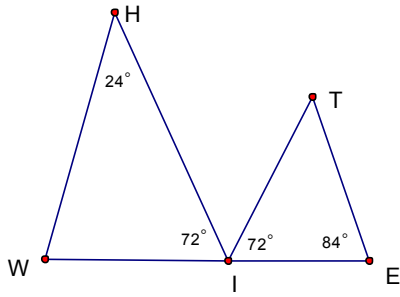*What does it mean if two triangles are congruent?*

What theorems can be used to show two triangles are congruent?
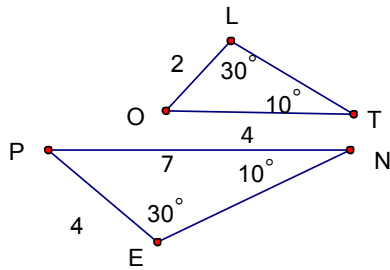
What does it mean if two triangles are similar?

What theorems can be used to show two triangles are similar?
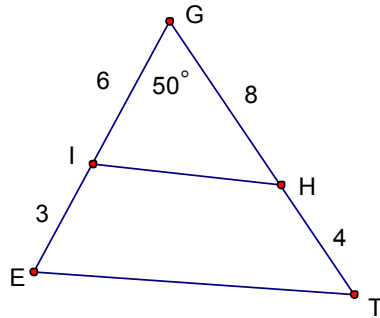
Name	Description	Example

Ex. Are the two triangles similar? If yes, by what theorem and what is the scale factor.

a)

H

24°

T

72° 72° 84°

W   I   E

b)

L

2   30°

O   10°

4   T

P   N

7   10°

30°

4

E

c)

G

6   50°   8

I

H

3

4

E

T

Ex. Use similar triangles to find the values of the variables.

a)

12

2x - 1

9   6

b)

8   Y

W   12   T   81° 33°

33°

3z   8x

Q   4   66°

24

66°   y + 1   R

E

5
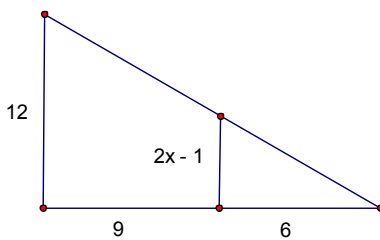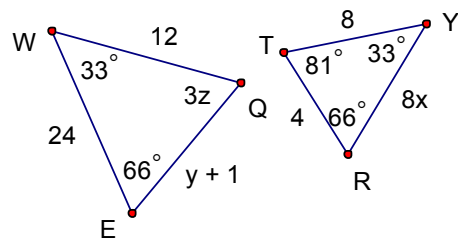
What does "indirect measurement" mean?

When would you use indirect measurement?

Ex. A person 5 feet 3 inches tall casts a 6 foot shadow. At the same time of day, a lamppost casts an 18-foot shadow. What is the height of the lamppost?

1) Draw a picture

2) Check units! They must be the same.

3) Set up proportion.

4) Solve. Is your answer reasonable?

Ex. A 25-ft rope from the top of the flagpole reaches to the end of the flagpole's 15-ft shadow. How tall is the nearby football goalpost if, at the same moment, it has a shadow of 17.5-ft?

Ex. An architect who is 1.9 meters tall, wants to find the height of a building they are re-modeling. From the base of the building the architect walks 42.1 meters along the buildings shadow to a position where the end of their shadow exactly overlaps the end of the tree's shadow. The architect is now 9.3 meters from the end of the shadows. How tall is the building?

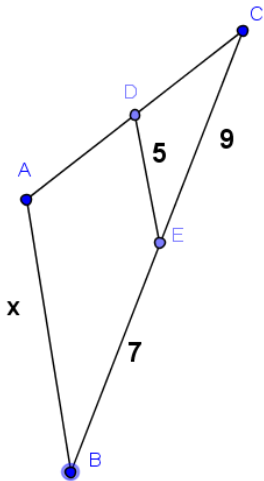# Proportional Segments between Parallel Lines (11.7)

Investigation:
Consider $\triangle ABC$ where $\overline{DE} \parallel \overline{AB}$.

a) Draw and label $\triangle ABC$ and $\triangle DEC$

b) Create a proportion comparing the side lengths

c) Solve for the value of x.

d) What relationship do you see amongst the sides of the two triangles?
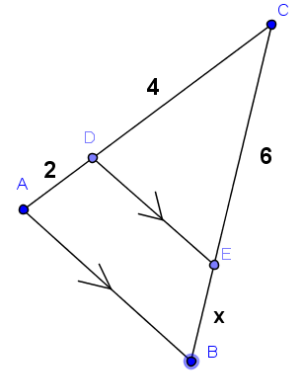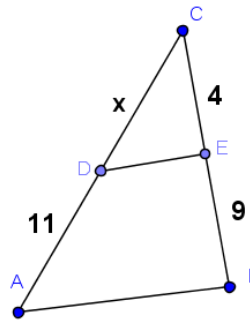
Parallel/Proportionality Conjecture: If a line parallel to one side of a triangle passes through the other two sides, then it divides the other two sides _____. The converse is also true.
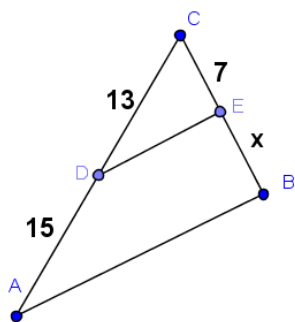
Ex. $\overline{DE} \parallel \overline{AB}$. Find the value of x.

Ex. $\overline{DE} \parallel \overline{AB}$. Find the value of x.

Ex. $\overline{DE} \parallel \overline{AB}$. Find the value of x.

C

7

13

E

x

D

B

15

A

Ex. $\overline{DE} \parallel \overline{AB}$. Find the value of x.

C

5

x

D

E

6

A

B

8