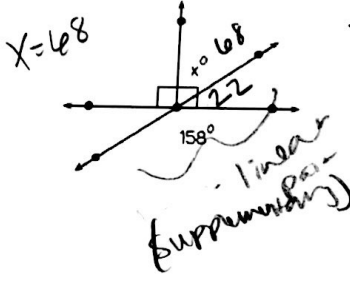


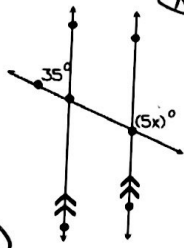
Name: _____

Find the value of x !

1. $180 - 158 = 22$

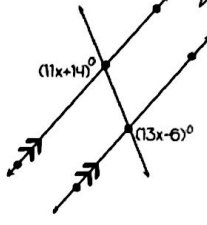


2. $35 + 5x = 180$
 $5x = 145$
 $x = 29$

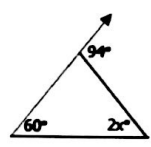


Part I: Angles

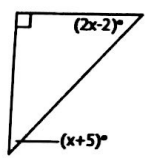
3. $11x + 14 = 13x - 6$
 $20 = 2x$
 $x = 10$



4. $60 + 2x = 94$
 $2x = 34$
 $x = 17$

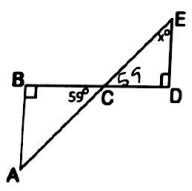


5.



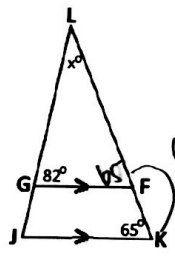
$x + 5 + 2x - 2 + 90 = 180$
 $3x + 93 = 180$
 $3x = 87$
 $x = 29$

6.



$180 = 90 + 59 + x$
 $x = 31$

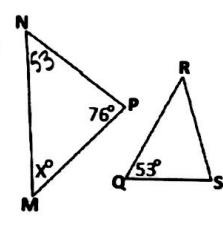
7.



$x = 33$
 $180 = 82 + 65 + x$

Corresponding angles

8. $(\triangle NPM \sim \triangle QRS)$

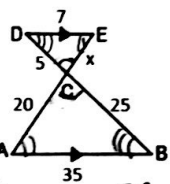


$180 = 53 + 76 + x$
 $x = 51$

Find the value of x!

9.

$\triangle ABC \sim \triangle EDC$



$$\frac{25}{5} = \frac{20}{x}$$

$$25x = 100$$

$$x = 4$$

OK

$$\frac{35}{7} = \frac{20}{x}$$

$$35x = 140$$

$$x = 4$$

$$\frac{4}{24} = \frac{x}{12}$$

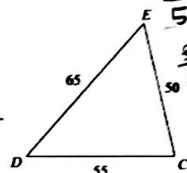
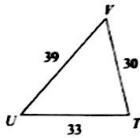
$$48 = 24x$$

$$x = 2$$

Are these triangles similar by SSS, SAS, AA, or just not similar?

14.

SSS \sim

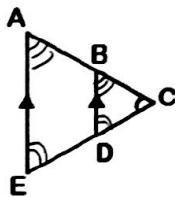


$$\frac{30}{50} = \frac{33}{55} = \frac{39}{65}$$

$$\frac{3}{5} = \frac{3}{5} = \frac{3}{5}$$

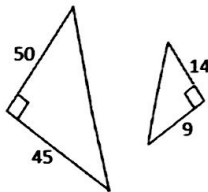
16.

AA \sim



17.

NOT \sim



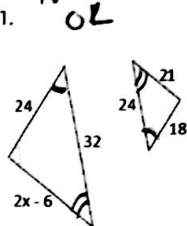
$$\frac{9}{45} \neq \frac{14}{50}$$

$$\frac{1}{5} \neq \frac{7}{25}$$

Part 2: Similarity

$$\frac{24}{18} = \frac{2x-6}{21}$$

11.



$$\frac{32}{24} = \frac{2x-6}{21}$$

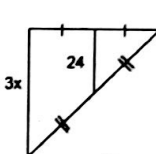
$$32(2) = 24(2x-6)$$

$$672 = 48x - 144$$

$$816 = 48x$$

$$x = 17$$

12.

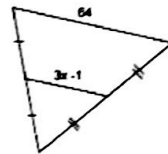


$$2(24) = 3x$$

$$48 = 3x$$

$$x = 16$$

13.



$$2(3x-1) = 64$$

$$6x-2 = 64$$

$$6x = 66$$

$$x = 11$$

Unit 4B Triangle Similarity Review
Honors Math 2

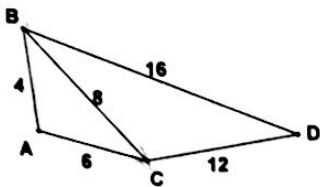
Name: _____

I can identify similar triangles and write similarity statements

If the triangles in 1 - 3 can be proved similar, complete the similarity statement and tell which theorem or postulate you would use. If they cannot be proved similar then write "None."

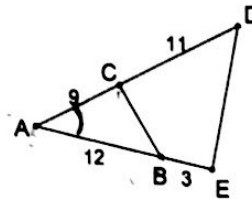
1. $\triangle ABC \sim \triangle CBD$ by SSS

$\frac{4}{8} = \frac{6}{12} = \frac{8}{16}$
 $\frac{1}{2} = \frac{1}{2} = \frac{1}{2}$

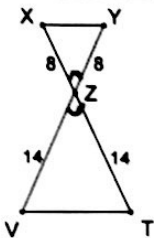


2. $\triangle ABC \sim \triangle ADE$ by SAS

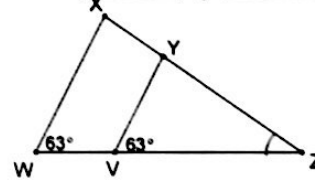
small big
 $\frac{9}{15} = \frac{12}{20}$
 $\frac{3}{5} = \frac{3}{5}$



3. $\triangle XYZ \sim \triangle ZVT$ by SAS



4. $\triangle YVZ \sim \triangle XWZ$ by AA



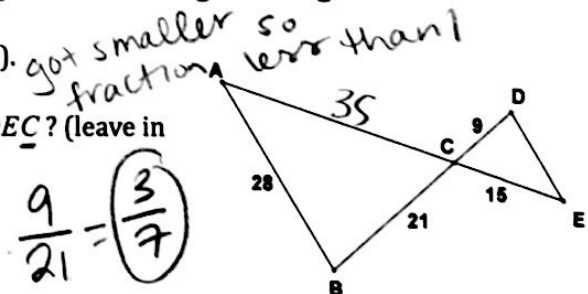
I can use what I know about similarity to find missing side lengths and variables.

5. $\triangle BAC \sim \triangle DEC$ (Use the image to the right).

a. What is the scale factor of $\triangle BAC$ to $\triangle DEC$? (leave in reduced fraction form): $\frac{3}{7}$

b. Find AC. 35
 $EC(\frac{7}{3}) = 15(\frac{7}{3}) = 35$

c. Find DE. 12
 $BA(\frac{3}{7}) = 28(\frac{3}{7}) = 12$

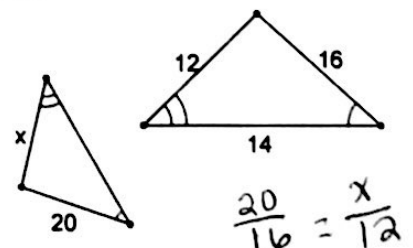


Think! Do I want it bigger or smaller?

$\frac{9}{21} = \frac{3}{7}$

$\frac{12}{30} = \frac{20}{x}$

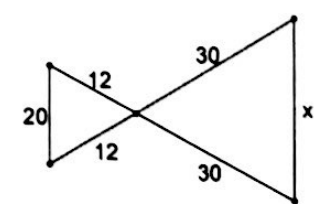
6. $x = \underline{15}$



$\frac{20}{16} = \frac{x}{12}$

7. $x = \underline{50}$

$16x = 240$
 $x = 15$



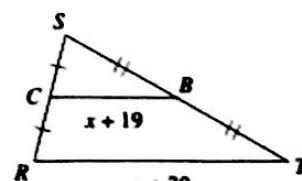
$12x = 600$
 $x = 50$

I can define the midsegment and use it to solve for side lengths or variables.

8. Midsegment of a Triangle:

a. The midsegment of a triangle joins the midpoints of two sides of a triangle.

b. The midsegment is parallel to the third side and is half the length of the third side.



c. Corresponding angles in the two similar triangles created by a midsegment are

Congruent

$$2(x+19) = x+29$$

$x = -9$

d. Use the image on the right to solve for x.

$$2x+38 = x+29$$

I can identify angle relationships within a transversal and use them to solve problems.

Use the diagram to answer 13 - 14.

9. If $m\angle 3 = (2x + 24)^\circ$ and $m\angle 6 = (6x + 20)^\circ$, find $m\angle 8$.

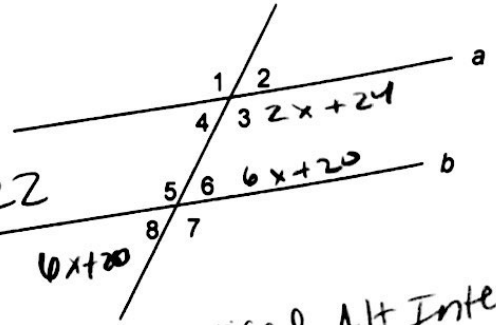
$$2x+24 + 6x+20 = 180$$

$$8x+44 = 180$$

$$8x = 136 \quad x = 17$$

$$6(17)+20 = 122$$

$$m\angle 8 = 122$$



10. What kinds of angles in a transversal are congruent?

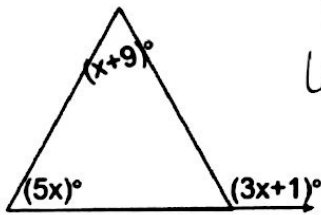
What kinds are supplementary?

Supplementary = same-side interior
same side exterior

Exterior Angle Theorem

Congruent = vertical, Alt Interior
Alternate exterior
corresponding

11. Solve for x. $x = \underline{-8/3}$



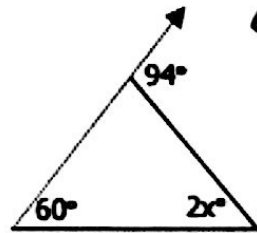
$$5x + x + 9 = 3x + 1$$

$$6x + 9 = 3x + 1$$

$$3x = -8$$

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

12. Solve for x. $x = \underline{17}$



$$94 = 60 + 2x$$

$$34 = 2x$$

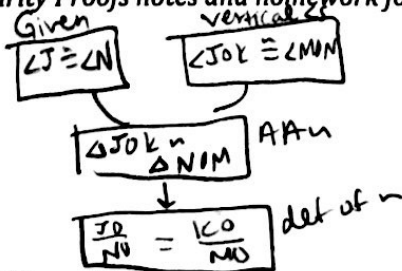
$$x = 17$$

I can prove triangle similarity and use triangle similarity to prove similar/congruent figures.

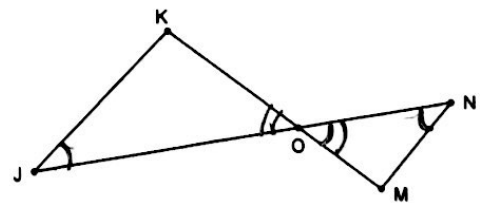
*Refer to the Triangle Similarity Proofs notes and homework for more examples.

13. Given: $\angle J \cong \angle N$

Prove: $\frac{JO}{NO} = \frac{KO}{MO}$



Given $\angle J \cong \angle N$ vertical \angle
 $\angle JOK \cong \angle NOM$
 $\triangle JOK \sim \triangle NOM$ AA ~
 $\frac{JO}{NO} = \frac{KO}{MO}$ def of ~



14. Given: $\angle CNH$ and $\angle CAM$ are 90°

Prove: $\frac{AM}{NH} = \frac{CM}{CH}$

Given $\angle CNH$ & $\angle CAM$ are 90°
 $\angle CNH \cong \angle CAM$ def of \angle
 $\angle C$ is reflexive
 $\angle C \cong \angle C$
 $\triangle CAM \sim \triangle CNH$ AA ~
 $\frac{AM}{NH} = \frac{CM}{CH}$ def of ~

