

Good morning! - Quiz Last 30 Minutes

1. "Here"
2. Warm-up with Similar Area and Volume Ratios
3. Notes on Proving Similar Triangles
4. Practice
5. Quiz

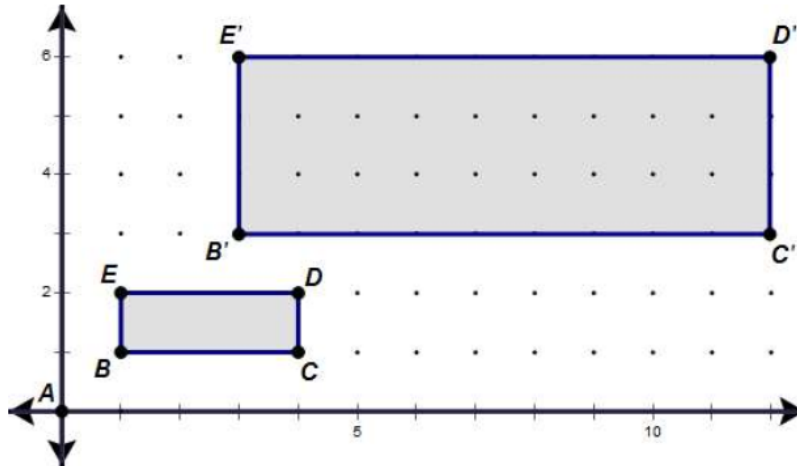
1)

$\frac{21}{x} = \frac{12}{8}$
 $21+x$
 $x=28$
 $\frac{x}{21} = \frac{4}{12}$
 $\frac{x}{21} = \frac{16}{12}$
 $\frac{12}{21} = \frac{16}{x}$

2)

$\frac{20}{x} = \frac{8}{2}$
 $2x = 40$
 $x = 20$
 $\frac{6}{2} = \frac{20x}{x}$
 $3x = 40 - 2x$
 $8x = 40$
 $x = 5$

1. Consider the following picture in which $\square BCDE$ has been dilated from point A.



- a. What is the scale factor of the dilation based on the sides?

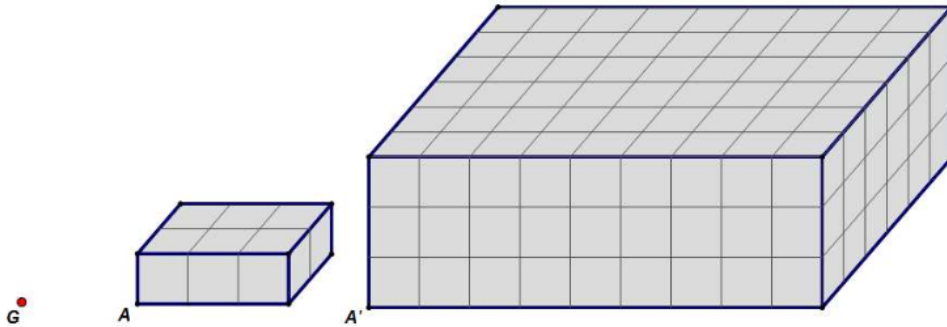
- b. What is the area of $\square BCDE$?

- c. What is the area of $\square B'C'D'E'$?

- d. What is the value of the area of $\square B'C'D'E'$ divided by area of $\square BCDE$? _____
- e. What might you conclude about the ratio of two dilated shapes sides compared to the ratio of their areas?

Perimeter (Scale Factor)	Area (Scale Factor Squared)
Corresponding Sides : Corresponding Sides	Area : Area
$A : B$	$A^2 : B^2$

2. Consider the following picture in which rectangular prism A has been dilated from point G.



- a. What is the scale factor of the dilation based on the sides?

- b. What is the volume of rectangular prism A?

- c. What is the volume of rectangular prism A'?

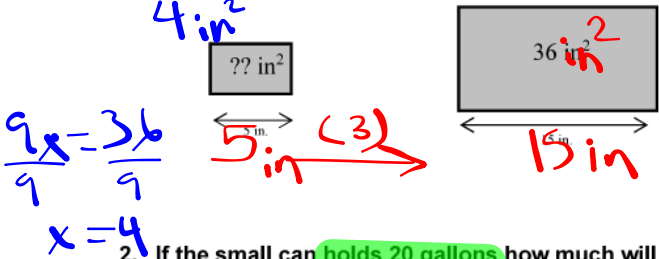
- d. What is the value of the volume of prism A' divided by volume of prism A? _____
- e. What might you conclude about the ratio of two dilated solids sides compared to the ratio of their volumes?

Perimeter (Scale Factor) Corresponding Sides : Corresponding Sides $A : B$	Area (Scale Factor Squared) Area : Area $A^2 : B^2$
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Volume (Scale Factor Cubed) Volume : Volume $A^3 : B^3$

? in² (9) → 36 in² $k > 1 \rightarrow$ Enlargement
 $0 < k < 1 \rightarrow$ Reduction

1. Find the unknown area based on the pictures below.



Scale Factors	Length	Area
$k = 3$		$k^2 = 3^2 = 9$

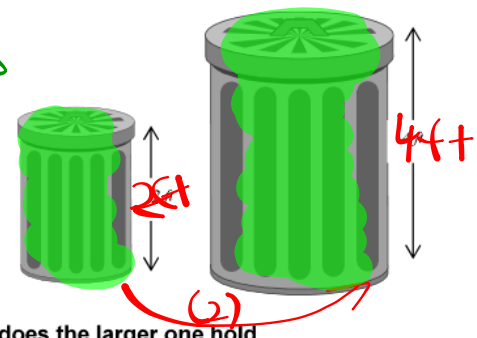
Area of the small square:
4 in²

2. If the small can holds 20 gallons how much will the big trashcan hold (assuming they are similar shapes)

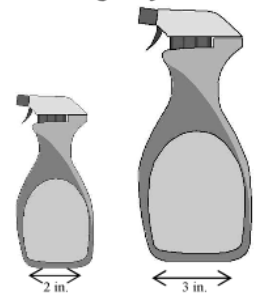
Scale Factors	Similarity Ratios	Length	Area	Volume
	$k = 2$		$k^2 = 2^2 = 4$	$k^3 = 2^3 = 8$

$20(8) = 160 \text{ gal}$

Volume of the Large Trashcan:
160 gal



3. If the smaller spray bottle holds 37 fl. oz., then how much does the larger one hold assuming they are similar shapes?

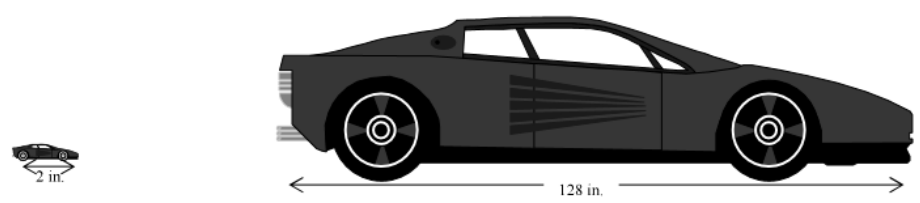


Scale Factors	Similarity Ratios	Length	Area	Volume

Volume of the Large Spray Bottle:

4. The smaller of the two cars is a Matchbox car set at the usual $\frac{1}{64}$ th scale (the length) and it takes 0.003 fluid ounces to paint the car. If the smaller is a perfect scale of the actual car and the ratios of the paint remains the same then how many gallons of paint will be needed for the real car? (128 fl. oz = 1 gallon)

Scale Factors	Similarity Ratios	Length	Area	Volume



Amount of Paint Needed:

**If Perimeter is to Area,
and Area is to Volume**



then Volume is to:

Geometry

3 - Similarity & Right Triangles

Notes

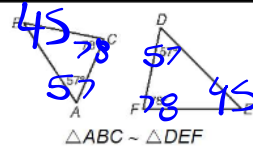
\cong congruent
 \sim similar

Name: _____ Date: _____

Ways to Prove Triangles are Similar

AA~ Postulate:

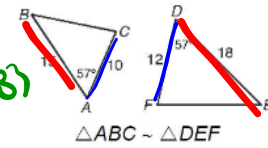
If two angles of one triangle are **congruent** to two angles of another, then the triangles are similar.



SAS~ Postulate:

If the lengths of two sides are **proportional** and the **included** angle is **congruent**, then the triangles are similar.

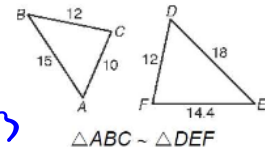
$\frac{15}{18} = \frac{10}{12}$
 $\frac{5}{6} = \frac{5}{6}$



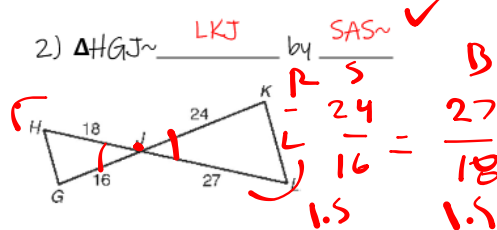
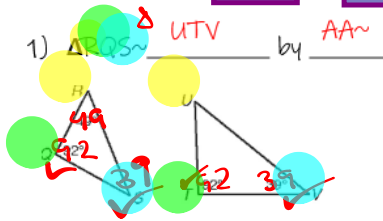
SSS~ Postulate:

If **all three** sides of one triangle are **proportional** to corresponding sides of another triangle, then the triangles are similar.

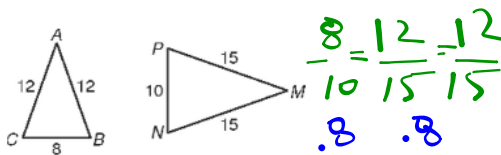
$\frac{10}{12} = \frac{12}{14.4} = \frac{15}{18}$
 $\frac{5}{6} = \frac{5}{6} = \frac{5}{6}$



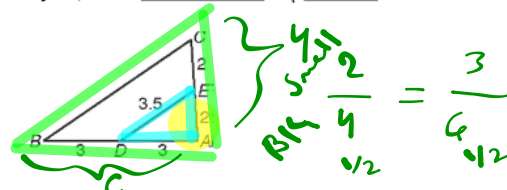
Practice: Explain why the triangles are similar (SSS~, SAS~, or AA~) and write a similarity statement.



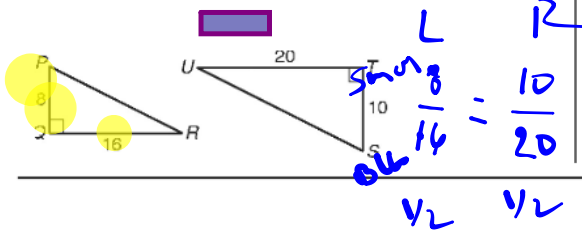
3) $\triangle ABC \sim \triangle MNP$ by **SSS~**



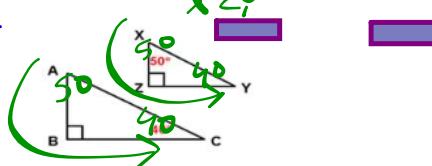
4) $\triangle ADE \sim \triangle ABC$ by **SAS~**



5) $\triangle QPR \sim \triangle TSU$ by **SAS~**

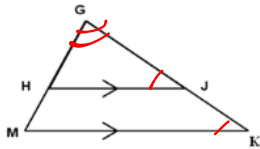


6) $\triangle ABC \sim \triangle XYZ$ by **AA~**

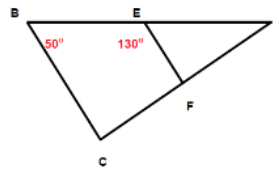




7) $\triangle GHJ \sim$ by *AA*

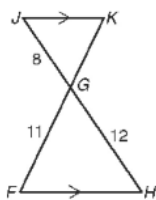


8) $\triangle AEF \sim$ by

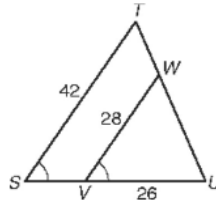


Explain why the triangles are similar (SSS~, SAS~, or AA~) and find each length.

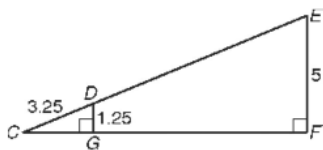
9) Similar by and $GK =$



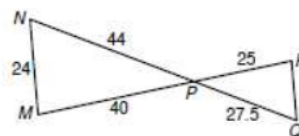
10) Similar by and $SU =$



11) Similar by and $DE =$



12) Similar by and $RQ =$



Geometry

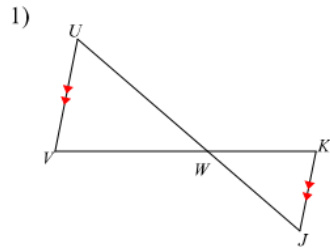
Name _____ ID: 1

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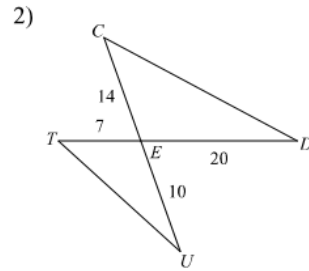
Proving Triangles Similar

Date _____ Period _____

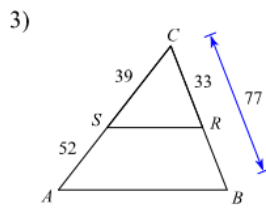
State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.



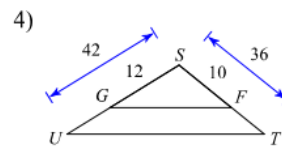
$\triangle WVU \sim$ _____



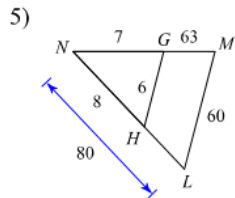
$\triangle EDC \sim$ _____



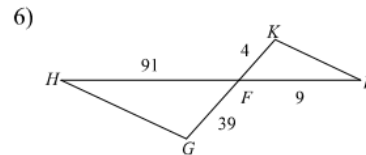
$\triangle CBA \sim$ _____



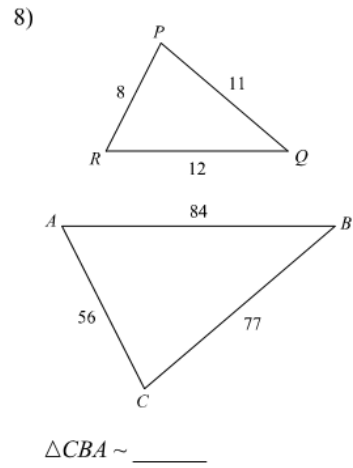
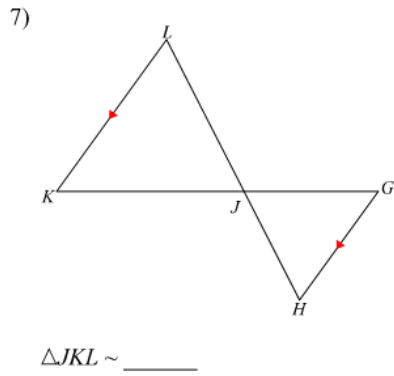
$\triangle STU \sim$ _____



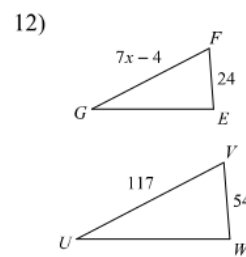
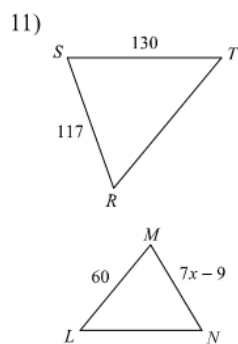
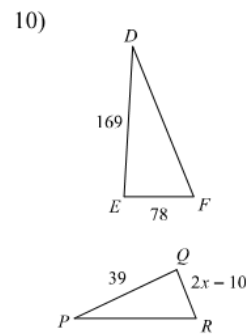
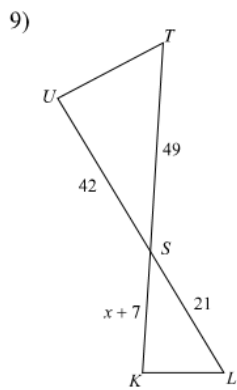
$\triangle NML \sim$ _____



$\triangle FGH \sim$ _____

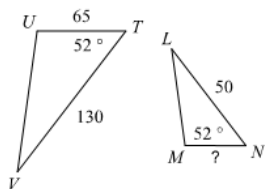


Solve for x . The triangles in each pair are similar.

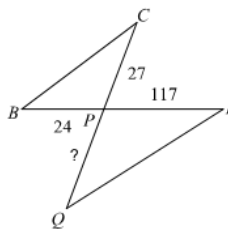


Find the missing length. The triangles in each pair are similar.

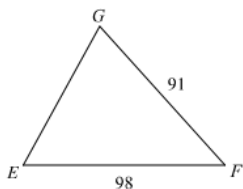
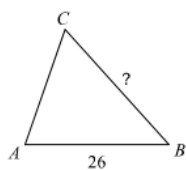
13)



14)



15)



16)

