

Trigonometry Quiz Review

Name _____ Date _____

1. A segment that is 50 feet long is dilated to length of 30 feet. What is the scale factor?

pre image

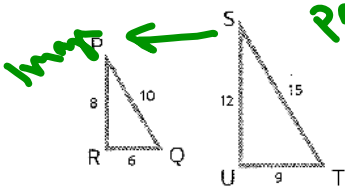
$$\frac{\text{image}}{\text{pre}} = k = \frac{30}{50} = \frac{3}{5} = .6$$

2. If figure was dilated by a scale factor of 4, explain how the size of the figure would change?

enlarged by 4 times

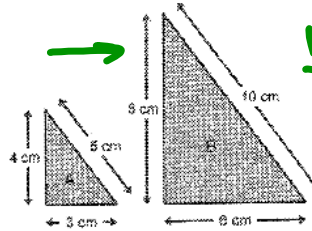
3. Identify the scale factor in each the following images.

a. STU to POR



$$\frac{8}{12} = \frac{2}{3}$$

b. A to B



$$\frac{10}{5} = 2$$

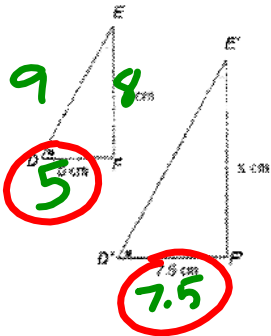
4. If triangle HIJ has side lengths of 34, 6.5, and 28.5, would the triangle QRS with side lengths 13, 68, and 56, be similar to HIJ? Explain why or why not.

SSS ~ not similar

$$\frac{6.5}{13} = \frac{28.5}{56} = \frac{34}{68}$$

$$\frac{28}{56} \neq \frac{28.5}{56}$$

5. If segment DE is 9, what is the perimeter of triangle D'E'F'?

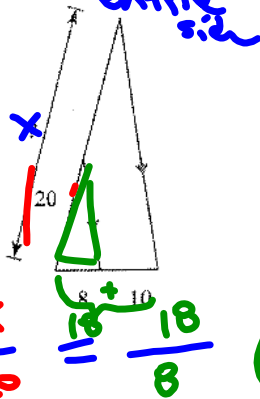


$$\frac{7.5}{5} = \frac{3}{2} \text{ or } 1.5$$

 (perimeter)(1.5)
 (22)(1.5)
33

6. Find the value of '?' in each of the following.

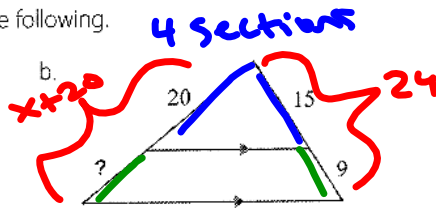
a.



$$\frac{20}{x} = \frac{18}{8}$$

x = 45

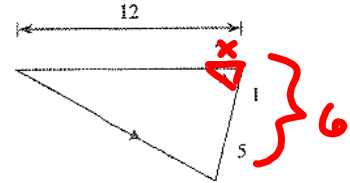
b.



$$\frac{20}{x} = \frac{15}{9}$$

x = 12

c.



$$\frac{12}{x} = \frac{6}{1}$$

x = 2

7. Points M, N, and O are midpoints.

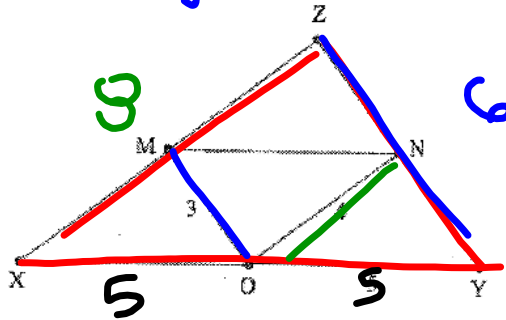
a. What is the perimeter of triangle XYZ?

24

b. What is the perimeter of triangle MNO?

12

midsegment



8. Answer the following questions.

a. Identify a trigonometric function that would have the same value as $\cos(32)$.

complementary $a+b=90$
 $\cos(32) = \sin(58)$

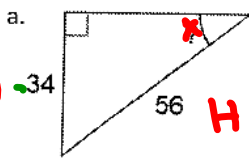
b. In triangle ABC, angle C is 90 degrees. If $\cos(A) = 8/10$, what is $\sin(B)$? Leave answer as a simplified fraction.

$\sin(B) = \frac{8}{10} = \frac{4}{5}$

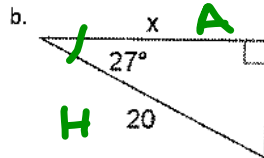
c. The $\cos(\theta) = 8/12$, what is the $\sin(90-\theta)$?

$\sin(90-\theta) = \frac{8}{12} = \frac{2}{3}$

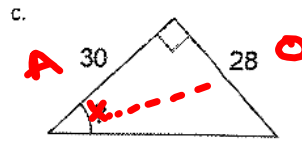
9. Find the measure of the indicated piece for each right triangle. Round to the nearest hundredth.



$\sin^{-1}\left(\frac{34}{56}\right) = 37.38^\circ$



$\cos(27) = \frac{x}{20}$
 $x = 20 \cdot \cos(27) = 17.82$



$x = \tan^{-1}\left(\frac{28}{30}\right) = 42.03^\circ$

10. The angle of depression from the top of a tower to a boulder on the ground is 65° . If the tower is 15 meters high, how far from the base of the tower is the boulder? Round to the nearest whole number.

$\tan(65) = \frac{15}{x}$
 $x = \frac{15}{\tan(65)} = 6.91 \approx 7m$

11. A 75 foot building casts an 82 foot shadow. What is the angle that the sun hits the building? Round to the nearest degree.

$\tan^{-1}\left(\frac{75}{82}\right) = 42^\circ$

12. A block slides down a 45 degree slope for a total of 2.8 meters. What is the change in the height of the block? Round to the nearest tenth.

$\sin(45) = \frac{x}{2.8}$
 $x = 2.8 \cdot \sin(45) = 2$

1. A segment that is 50 feet long is dilated to length of 110 feet. What is the scale factor?

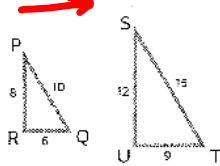
$$\frac{\text{Image}}{\text{Pre}} = \frac{110}{50} = \frac{11}{5} = 2.2$$

2. If figure was dilated by a scale factor of 3, explain how the size of the figure would change?

Enlargement by 3 times

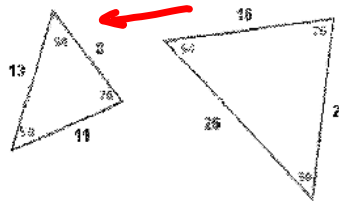
3. Identify the scale factor in each the following images.

a. PQR to STU



$$\frac{9}{6} = \frac{3}{2} = 1.5$$

b. Big to Small



$$\frac{8}{16} = \frac{11}{22} = \frac{13}{26} = \frac{1}{2}$$

$$k = .5$$

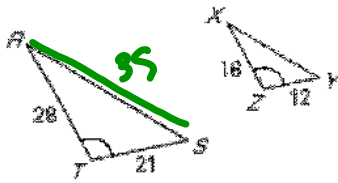
4. If triangle HIJ has side lengths of 12, 6, and 14, would the triangle QRS with side lengths 18, 21, and 9, be similar to HIJ? Explain why or why not.

SSS ~

$$\frac{6}{9} = \frac{12}{18} = \frac{14}{21}$$

yes!

5. If segment RS is 35, what is the perimeter of triangle XYZ?



$$\text{Pre } \frac{12}{21} = \frac{4}{7}$$

Pre-perimeter
 $28 + 35 + 21 = 84$

$$\text{Perimeter} = \left(\frac{4}{7}\right)(84) = 48$$

6. Find the value of '?' in each of the following.

a.
$$\frac{20}{36} = \frac{x}{81}$$

$$\frac{36}{20} \times = \frac{1620}{76}$$

$$x = 45$$

b.
$$\frac{6}{x} = \frac{4}{8}$$

$$48 = 4x$$

$$x = 12$$

c.
$$\frac{32}{12} = \frac{x}{27}$$

$$864 = 12x$$

$$x = 72$$

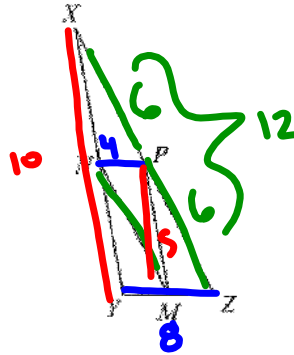
7. Points P, N, and M are midpoints. NP=4, PZ=6, and PM=5

a. What is the perimeter of triangle XYZ?

30

b. What is the perimeter of triangle MNP?

15



8. Answer the following questions.

a. Identify a trigonometric function that would have the same value as $\sin(47)$.

$\cos(33)$

b. In triangle ABC, angle C is 90 degrees. If $\cos(B)=24/25$, what is $\sin(B)$? Leave answer as a simplified fraction.

$\sin B = \frac{7}{25}$



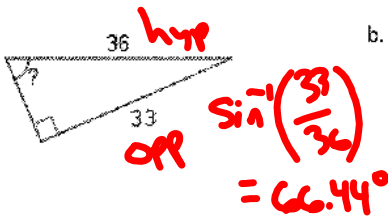
$a^2 + b^2 = c^2$

c. The $\cos(\theta) = 25/65$, what is the $\sin(90 - \theta)$?

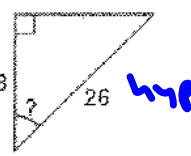
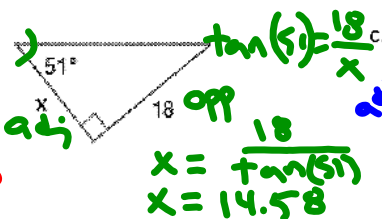
$\sin(90 - \theta) = \frac{25}{65} = \frac{5}{13}$

9. Find the measure of the indicated piece for each right triangle. Round to the nearest hundredth.

a.

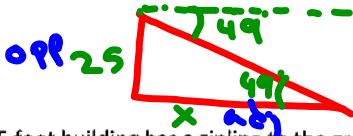


b.



$\cos^{-1}\left(\frac{18}{26}\right)$
 $x = 46.19^\circ$

10. The angle of depression from the top of a tower to a boulder on the ground is 49°. If the tower is 25 meters high, how far from the base of the tower is the boulder? Round to the nearest whole number.



$\tan(49) = \frac{25}{x}$
 $x = \frac{25}{\tan(49)} = 21.7 = 22 \text{ m}$

11. A 45 foot building has a zipline to the ground. If the zipline is 97 feet long, what is the angle that zipline makes with the ground? Round to the nearest degree.



$\sin^{-1}\left(\frac{45}{97}\right) = 27.6 = 28^\circ$

12. A handicap ramp is 12 feet long. The angle the ramp makes with the ground is 8 degrees. What is the height of the ramp? Round the nearest tenth of a foot.



$\sin(8) = \frac{x}{12}$
 $x = 12 \cdot \sin(8) = 1.7 \text{ ft}$

Geometry

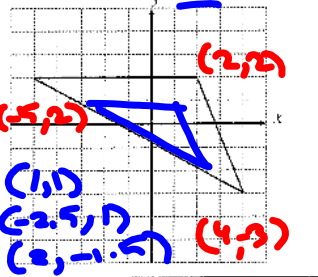
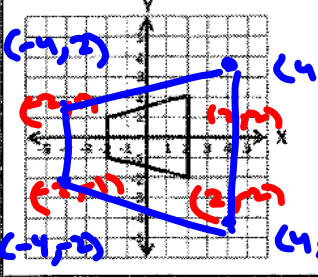
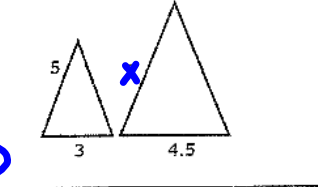
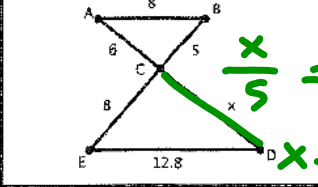
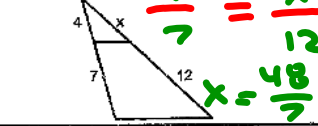

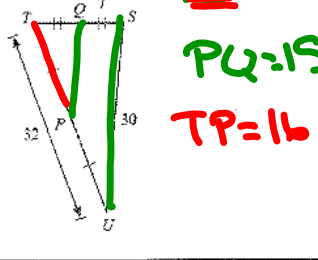
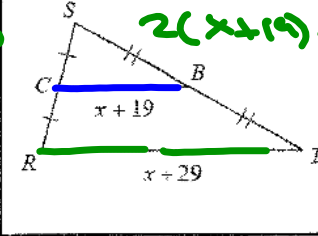
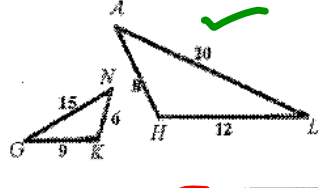
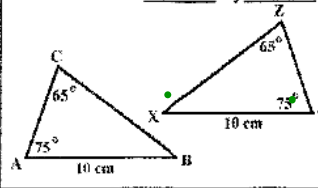
Review Sheet

2-Similarity and Right Triangles

Name: _____

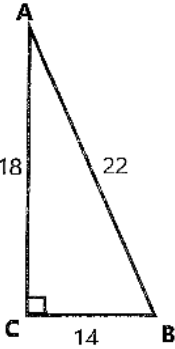
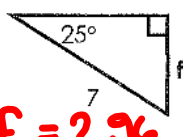
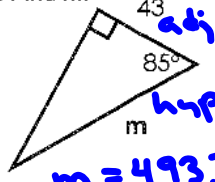
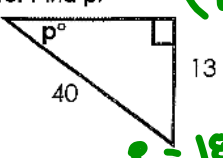
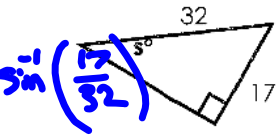

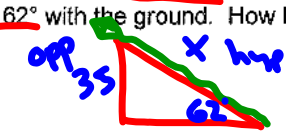
Date: _____

Use the following to review for you test. Work the Practice Problems on a separate sheet of paper.

What you need to know & be able to do	Things to remember		
A. Perform a dilation with a given scale factor	When the center of dilation is the origin, you can multiply each coordinate of the original figure, or pre- image, by the scale factor to find the coordinates of the dilated figure, or image.	1. Dilate with $k = \frac{1}{2}$. 	2. Dilate with $k = 2$. 
B. Find the missing side for similar figures.	Set up a proportion by matching up the corresponding sides. Then, solve for x. $\frac{3}{4.5} = \frac{5}{x}$ $x = 7.5$	3. 	4.  $\frac{6}{8} = \frac{x}{12.8}$ $x = 9.6$
		5.  $\frac{4}{7} = \frac{x}{12}$ $x = \frac{48}{7}$	6.  $\frac{x}{10} = \frac{2}{5}$ $x = 4$
C. Midsegment Theorem	The segment connecting the midpoints of two sides of the triangle is parallel to the third side and $\frac{1}{2}$ the length of the third side.	7. Find PQ and TP  $PQ = 15$ $TP = 16$	8. Solve for x.  $2(x + 19) = x + 29$ $2x + 38 = x + 29$ $x = -9$
D. Determine if 2 triangles are similar, and write the similarity statement.	Remember the 3 ways that you can do this: AA, SAS, SSS	9. $\triangle GKN \sim \triangle LAH$ by <u>SSS</u> 	10. $\triangle ABC \sim \triangle XYZ$ by <u>AA</u> 

$$\frac{6}{9} = \frac{9}{12} = \frac{15}{20}$$

Geometry Review Sheet 2-Similarity and Right Triangles

<p>E. Find sin, cos, and tan ratios</p>	<p>Just find the fraction using SOHCAHTOA</p>		<p>11. Find sin A. $\frac{14}{22} = \frac{7}{11}$</p> <p>12. Find tan B. $\frac{18}{14} = \frac{9}{7}$</p> <p>13. Find cos B. $\frac{14}{22} = \frac{7}{11}$</p> <p>14. Find tan A. $\frac{14}{18} = \frac{7}{9}$</p>
<p>F. Know the relationship between the ratios for complementary angles.</p>	<p>$\sin \theta = \cos(90 - \theta)$ $\cos \theta = \sin(90 - \theta)$ $\tan \theta = \frac{1}{\tan(90 - \theta)}$</p>	<p>15. Given Right $\triangle ABC$ and $\sin \theta = 5/13$, find $\sin(90 - \theta)$ and $\cos(90 - \theta)$.</p> <p>$a^2 + b^2 = c^2$ $5^2 + b^2 = 13^2$ $25 + b^2 = 169$ $b = 12$</p> <p>$\cos(90 - \theta) = 5/13$ $\sin(90 - \theta) = 12/13$</p>	
<p>G. Use trig to find a missing side measure</p>	<p>Set up the ratio and then use your calculator. If the variable is on the top, multiply. If the variable is on the bottom, divide.</p>	<p>16. Find f.</p>  <p>$\sin(25) = \frac{f}{7}$ $f = 2.96$</p>	<p>17. Find m.</p>  <p>$\cos(85) = \frac{m}{43}$ $m = 493.37$</p>
<p>H. Use trig to find a missing angle measure</p>	<p>Tap the trig button twice to get the INVERSE then type in the ratio.</p>	<p>18. Find p.</p>  <p>$\sin^{-1}(\frac{13}{40})$ $p = 18.97$</p>	<p>19. Find s.</p>  <p>$\sin^{-1}(\frac{17}{32})$ $s = 32.09$</p>
<p>I. Trig Word Problems</p>	<p>Draw the picture. Label the sides. Set up the ratio, and solve.</p>	<p>20. From 25 feet away from the base of a building, the angle of elevation from the ground to the top of a building is measured to be 38°. How tall is the building?</p>  <p>$\tan(38) = \frac{x}{25}$ $x = 25 \cdot \tan(38) = 19.53 \text{ ft}$</p> <p>21. A kite is 35 feet in the air and the string forms an angle of 62° with the ground. How long is the string?</p>  <p>$\sin(62) = \frac{35}{x}$ $x = \frac{35}{\sin(62)} = 39.64 \text{ ft}$</p>	