

October 1, 2018, Monday

1) ASA  
 2) SSS  
 3)  $\frac{10}{8} = 1.25$   
 $\frac{10}{8} = 1.25$   
 $\frac{20}{16} = 1.25$   
 Vocabulary Check!

- 1) Draw two triangles which are congruent (with leg lengths &/or angles)
- 2) Draw two triangles which are similar (with leg lengths &/or angles)
- 3) Draw a midsegment of a triangle (using tic marks where appropriate)
- 4) What two geometric tools can you use to make geometric constructions?  
 compass, straightedge, protractor.

Sep 20-8:31 AM

Unit 2 Study Guide Part 2

1) Determine the dilation scale factor.  
 $H(0,2) \rightarrow H'(0,3)$   
 $\frac{H'_y}{H_y} = \frac{3}{2} = 1.5$   
 $\frac{H'_x}{H_x} = \frac{0}{0} = ?$   
 $\frac{H'_y}{H_y} = \frac{H'_x}{H_x} = 1.5$   
 $1.5 \times 2 = 3$   
 $1.5 \times 15 = 22.5$   
 $1.5 \times 15 = 22.5$   
 $1.5 \times 15 = 22.5$

2) Find the missing side,  $x$ .

Determine if each set of triangles are similar by AA, SAS, or SSS. Otherwise, write Not Similar.

39) SSS  
 $\frac{10}{12} = \frac{12}{18} = \frac{15}{18} = 0.83$   
 $\triangle ABC \sim \triangle DEF$

40) SAS  
 $\frac{10}{12} = \frac{12}{18} = 0.83$   
 $\triangle ABC \sim \triangle DEF$

41) AA  
 $\frac{10}{12} = \frac{12}{18} = 0.83$   
 $\triangle ABC \sim \triangle DEF$

42) SAS  
 $\frac{10}{12} = \frac{12}{18} = 0.83$   
 $\triangle ABC \sim \triangle DEF$

43) SSS  
 $\frac{10}{12} = \frac{12}{18} = \frac{15}{18} = 0.83$   
 $\triangle ABC \sim \triangle DEF$

44) Given that  $M, P, \& N$  are midpoints and the perimeter of  $\triangle MPN = 91$ , what is the perimeter of  $\triangle XYZ$ ?  
 $DE = \frac{1}{2} AC$  OR  
 $2(3x-15) = 30$   
 $6x - 30 = 30$   
 $+30 +30$   
 $6x = 60$   
 $x = 10$   
 $50 + 30 + 42 = 122$   
 $80 + 42 = 122$

For all by-hand constructions use a compass and straightedge. DO NOT erase your construction marks.

15) Copy the angle.  
 16) Construct a regular hexagon inscribed in the circle.  
 17) Bisect the angle.  
 18) Construct a perpendicular bisector.  
 19) Construct a parallel line through the given point.  
 20) Construct a square inscribed in a circle.

TRY ANY 3!

Constructions Review

Match each construction to its image. Highlight the first step of each construction. If complete, highlight the last step of the construction in another color. If incomplete, complete the construction.

21) Copying an angle  
 22) Hexagon inscribed in a circle  
 23) Copying a line segment  
 24) Bisecting an angle  
 25) Square inscribed in a circle  
 26) Parallel line  
 27) Perpendicular bisector  
 28) Perpendicular line through a point on the line  
 29) Perpendicular line through a point NOT on the line  
 30) Equilateral triangle inscribed in a circle

October 2, 2018, Tuesday

What is being constructed?  
 ANGLE BISECTOR  
 MOVE THE COMPASS TO SEGMENT QR & MAKE ANOTHER ARC

What is the next step?

Are the triangles similar? How?  
 NO, NOT SIMILAR  
 $2(3x-5) = 26$   
 $6x - 10 = 26$   
 $+10 +10$   
 $6x = 36$   
 $x = 6$

Test!

What is  $x$ ?  
 $DE = 13$

Sep 20-8:32 AM

Test

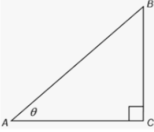
You may skip 1 problem per page, please write 'skip' on that problem otherwise I will grade it.

16. You may complete the construction described or a equilateral triangle inscribed in a circle. Please leave construction marks (= do not erase!).

Oct 2-7:55 AM

Using a laptop find out what SOHCAHTOA means. Write it in mathematical terms (letters & variables).

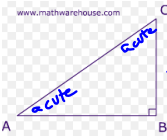
Label the following triangle using the words: hypotenuse, opposite & adjacent



Oct 2-12:15 PM

October 3, 2018, Wednesday  
Unit 3 - Right Triangle Trigonometry

State a minimum of 5 characteristics of the following triangle.




1) a right triangle  
2) there are sides (legs) and angles  
3) there are 3 vertices  
4) there is 1 hypotenuse  
5) there are 2 acute angles.

Sep 20-8:33 AM

Unit 3 - What is Right Triangle Trigonometry?  
<https://www.bc.edu/slc/sospa/01> by Garrick

While watching this video, list 5 important things you discover in your notebook.



The trigonometric functions at **sine, cosine, tangent, cotangent**

UNIT 3 - RIGHT TRIANGLE TRIGONOMETRY

Students will apply similarity in right triangles to understand the Pythagorean Theorem and the relationship between the sine involving right triangles.

The following will take you to activities that will provide a better understanding of trigonometry.

SOH CAH TOA explained, Garrick

$\sin \theta = \frac{\text{opp}}{\text{hyp}}$     $\cos \theta = \frac{\text{adj}}{\text{hyp}}$     $\tan \theta = \frac{\text{opp}}{\text{adj}}$

↑ "theta" angle measure


$\sin x = \frac{o}{h}$

Sep 20-8:48 AM

p585

Draw the Ratio in a Right Triangle, labeling all part of the right triangle

"TOP DRAWING"

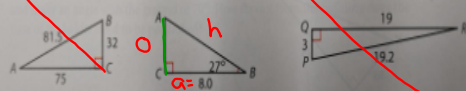


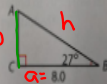
p590 Use the tangent to find the unknown side length. #9-14

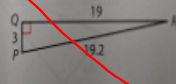
p 590 Use the tan-1 to find the unknown angle measure #15-17

Sep 20-10:57 AM

Use the tangent to find the unknown side length. **SOHCAHTOA**

9. Find QR.  **tan 27 = 81/75**

10. Find AC.  **tan 27 = 8/h**

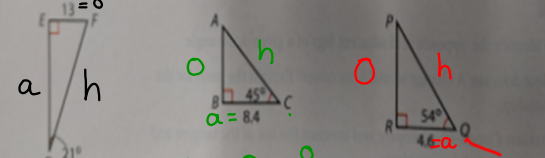
11. Find PQ.  **tan 21 = 19/19.2**

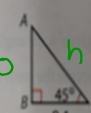
$\tan \theta = \frac{\text{opp}}{\text{adj}}$

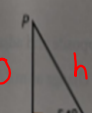
$8(\tan 27) = \frac{8}{h}$

$4.1 = 0$

Oct 3-10:17 AM

12. Find DE.  **tan 21 = a/h**

13. Find AB.  **tan 45 = 8.4/h**

14. Find PR.  **tan 54 = 4.6/h**

$\tan \theta = \frac{\text{opp}}{\text{adj}}$

$8.4(\tan 45) = \frac{8.4}{h}$

$8.4 = 0$

$4.6(\tan 54) = \frac{4.6}{h}$

$6.3 = 0$

$\frac{a \cdot \tan 21}{\tan 21} = \frac{13}{\tan 21}$

$\therefore a = 33.9$

Oct 3-1:10 PM

find the measure of the angle specified for each triangle. Use the inverse tangent ( $\tan^{-1}$ ) function of your calculator. Round your answer to the nearest degree.  $\tan^{-1}$  OR arctan

15. Find  $\angle A$ . 16. Find  $\angle R$ . 17. Find  $\angle B$ .

$a = 3.0$   
 $\tan \theta = \frac{a}{b} = \frac{3.0}{6.8}$   
 $\theta = \tan^{-1}\left(\frac{3.0}{6.8}\right)$   
 $\theta = 24^\circ$

$\tan \theta = \frac{a}{b} = \frac{9}{24}$   
 $\theta = \tan^{-1}\left(\frac{9}{24}\right)$   
 $\theta = 21^\circ$

Oct 3-10:18 AM

Oct 4, 2018, Wednesday

How do SOHCAHTOA help you remember the tangent ratio.  
 $\sin \theta = \frac{o}{h}$   $\cos \theta = \frac{a}{h}$   $\tan \theta = \frac{o}{a}$

Set up the tangent ratio to solve for x.

$\tan \theta = \frac{o}{a}$   
 $x \tan 20^\circ = \frac{10}{x}$   
 $x^2 \tan 20^\circ = 10$   
 $x = \frac{10}{\tan 20^\circ}$   
 $x = 27.5$

$\tan \theta = \frac{o}{a}$   
 $15 \tan 30^\circ = \frac{x}{15}$   
 $8.7 = x$

$\tan \theta = \frac{o}{a}$   
 $\tan \theta = \frac{3.0}{5.0}$   
 $\theta = \tan^{-1}\left(\frac{3.0}{5.0}\right)$   
 $\theta = 31^\circ$

Oct 3-1:41 PM

What does the tangent ratio help you find?

theta  $\theta$   
 adjacent leg  
 opposite leg

ONLY in a right triangle

<https://youtu.be/BLHk7WkgdKw> by Owens

Tangent Ratio explained, Owens

kuta

Sep 20-11:00 AM

Geometry Name \_\_\_\_\_ ID: 1

The tangent ratio (TOA) Date \_\_\_\_\_ Period \_\_\_\_\_

Find the value of each trigonometric ratio to the nearest ten-thousandth.

1)  $\tan 37^\circ$  2)  $\tan 78^\circ$   
 3)  $\tan 16^\circ$  4)  $\tan 1^\circ$

Find the value of each trigonometric ratio.

5)  $\tan Z$   $\tan Z = \frac{2}{3}$   
 $\tan Z = \frac{3}{5}$   
 $\tan Z = 2.17$

6)  $\tan A$   $\tan A = \frac{2}{a}$   
 $\tan A = \frac{14}{48}$

7)  $\tan C$   $\tan C = \frac{2}{9}$   
 $\tan C = \frac{9}{13}$

8)  $\tan X$   $\tan X = \frac{2}{a}$   
 $\tan X = \frac{16}{12}$

Find  $Z$   $\tan Z = \frac{2}{3}$   
 $Z = \tan^{-1}\left(\frac{2}{3}\right)$   
 $Z = 33.7^\circ$

Find  $C$   $\tan C = \frac{2}{9}$   
 $C = \tan^{-1}\left(\frac{2}{9}\right)$   
 $C = 12.1^\circ$

Oct 4-1:20 PM

Oct 5, 2018, Friday

Find the missing side. Round to the nearest tenth.

1)  $\tan \theta = \frac{a}{b}$   
 $\tan 28^\circ = \frac{12}{x}$   
 $x \tan 28^\circ = 12$   
 $x = \frac{12}{\tan 28^\circ}$

2)  $\tan \theta = \frac{a}{b}$   
 $\tan 15^\circ = \frac{x}{10}$   
 $x = 10 \tan 15^\circ$

3)  $\tan \theta = \frac{a}{b}$   
 $\tan \theta = \frac{21}{37}$   
 $\theta = \tan^{-1}\left(\frac{21}{37}\right)$   
 $\theta = 30.7^\circ$

4)  $\tan \theta = \frac{a}{b}$   
 $\tan \theta = \frac{21}{37}$   
 $\theta = \tan^{-1}\left(\frac{21}{37}\right)$   
 $\theta = 30.7^\circ$

Oct 4-1:46 PM

Copy p594 Trig Ratios

How does this fit in our SOHCAHTOA?

SOH CAH TOA  
 $\sin \theta = \frac{o}{h}$   $\cos \theta = \frac{a}{h}$   $\tan \theta = \frac{o}{a}$   
 Sine cosine tangent

Sep 20-11:15 AM

Let's start with sine (SOH)...

$h = 13\text{cm}$

$\theta = 60^\circ$

$o = x \text{ cm}$

$\sin \theta = \frac{o}{h}$

$\sin 60 = \frac{x}{13}$

$11.2 = x$

Sep 20-11:17 AM

& now for cosine (CAH)...

**Cosine**

Hypotenuse

Adjacent

adjacent hypotenuse

**CAH**

$\cos \theta = \frac{a}{h}$

$17(\cos 18^\circ) = \frac{x}{17}$

$16.2 = x$

Will sine or tangent work in this right triangle?

Sep 20-11:19 AM

Can you use multiple ratios (SOH), (CAH), and/or (TOA)?

$3\text{m}$

$5\text{m} = h$

$a = 4\text{m}$

$\theta$

**SOH**

$\sin \theta = \frac{o}{h}$

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

$\theta = 36.8^\circ$

**CAH**

$\cos \theta = \frac{a}{h}$

$\cos \theta = \frac{4}{5}$

$\theta = 36.8^\circ$

**TOA**

$\tan \theta = \frac{o}{a}$

$\tan \theta = \frac{3}{4}$

$\theta = 36.8^\circ$

Sep 20-11:23 AM

Let's explore some resources about trigonometry ratios on Geogebra...

<https://ggbm.at/27309748> brzenzi geobra trig ratio

<https://www.geogebra.org/m/kou575uX2material1ZD0WVDe> ayoub trig ratio veiling triangles

Write down 3 observations for each Geogebra file.

Sep 20-11:25 AM

Familiarizing with the Sine ratio - Kuta 1 - 8

Familiarizing with the Cosine ratio - Kuta

Can you choose the correct ratio? - Self assess

Word problems with a group.

Sep 20-11:56 AM

Geometry Name \_\_\_\_\_ ID: 1

Trigonometry Ratio Sine (SOH) Date \_\_\_\_\_ Period \_\_\_\_\_

Find the value of each trigonometric ratio to the nearest ten-thousandth.

1)  $\sin 71^\circ$  2)  $\sin 2^\circ$

3)  $\sin 47^\circ$  4)  $\sin 79^\circ$

Find the value of each trigonometric ratio.

5)  $\sin A$  6)  $\sin C$

7)  $\sin X$  8)  $\sin A$

9)  $\cos C$  10)  $\cos Z$

11)  $\sin C$  12)  $\tan C$

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Oct 5-1:43 PM

Geometry \_\_\_\_\_ Name \_\_\_\_\_ ID: 1  
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 Trigonometry Ratio Sine (SOH) \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_



Find the value of each trigonometric ratio to the nearest ten-thousandth.

1)  $\sin 71^\circ$  2)  $\sin 2^\circ$   
 0.9455 0.0349



3)  $\sin 47^\circ$  4)  $\sin 79^\circ$   
 0.7314 0.9816

Find the value of each trigonometric ratio.



5)  $\sin A$  6)  $\sin C$



7)  $\sin X$  8)  $\sin A$

9)  $\cos C$  10)  $\cos Z$

11)  $\sin C$  12)  $\tan C$

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Oct 5-1:43 PM