

SOHCAHTOA October 8, 2018, Monday

Find the measure of the indicated angle to the nearest degree.

1) $\sin \theta = \frac{8}{31}$
 $\sin^{-1} \theta = \sin^{-1} \left(\frac{8}{31} \right)$

Find the missing side. Round to the nearest tenth.

2) $\cos \theta = \frac{9}{20}$
 $\cos 39 = \frac{20}{x}$
 $x \cos 39 = 20$
 $x = \frac{20}{\cos 39}$

Find the value of each trigonometric ratio.

3) $\tan Z = \frac{12}{24}$
 $\tan Z = \frac{1}{2}$

Find the measure of the indicated angle to the nearest degree.

1) $\frac{34}{31}$
 66°

Find the missing side. Round to the nearest tenth.

2) $\frac{20}{2}$
 25.7

Find the value of each trigonometric ratio.

3) $\tan Z = \frac{12}{24} = \frac{1}{2}$

Oct 4-10:42 AM

SOHCAHTOA Complete 1 level C, 1 level B, 1 level A
 Draw pictures, if one if not already drawn!

Math 7 _____ Date _____
 Trig. Problem Solving Group Activity

Directions: Solve the following problems. If a drawing is not provided, create and label one and show all work. Be sure to include the correct units for all answers. Round to the nearest tenth. You may use your notes and homework problems.

EVERY PERSON MUST TURN IN HER/HIS PAPER
 ONE PAPER WILL BE RANDOMLY CHOSEN TO BE GRADED.
 WORK ON ONE PROBLEM AT A TIME TOGETHER.

C-Level Problems:

1. Solve for x .

2. A helicopter is hovering above a road at an altitude of 24 m. At a certain time, the distance between the helicopter and a car on the road is 45.0 m. Calculate the angle of depression from the helicopter from the car.

3. A ramp has an angle of elevation of 20° . It has a vertical height of 1.8 m. What is the length of ramp?

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Oct 5-1:52 PM

B-Level Problems:

4. Cedar Point's *Millennium Force* is 310 feet high. Ralph is sitting on a bench eating an elephant ear and could see the top of *Millennium Force* at an angle of elevation of 42° . Bonnie is standing in line for the ring toss and could see the top of *Millennium Force* at an angle of elevation of 50° . Assuming that Ralph & Bonnie are straight across from each other and *Millennium Force* is between them, how far apart from each other are they?

5. Each base angle of an isosceles triangle has a measure of 58° . The base of the triangle has a length of 30 cm. Find the area of the triangle. ($L = \frac{1}{2}bh$)

A-Level Problem:

6. A person observes that from point A, the angle of elevation to the top of a cliff at D is 30° . Another person at point B, notes that the angle of elevation to the top of the cliff is 45° . If the height of the cliff is 80.0 m, find the distance between A and B.

Answers: 1. 19.1 2. 32.2° 3. 5.3m 4. 604.48 5. $3600m^2$ 6. 58.6m

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October 9, 2018, Tuesday

Know SOHCAHTOA, because you need to decide which trig ratio to use!

Find the measure of the indicated angle to the nearest degree.

1)

2)

3)

4)

5)

Choose 1 from the left & 1 from the right!

Oct 8-1:38 PM

Geometry Name _____ ID: 1

Know SOHCAHTOA, because you need to decide which trig ratio to use!

Find the measure of the indicated angle to the nearest degree.

1)

2)

3)

4)

5)

6)

7)

8)

9)

10)

Oct 5-1:53 PM

Find the missing side. Round to the nearest tenth.

11)

12)

13)

14)

15)

16)


17)

18)


19)


20)


Oct 5-1:53 PM


20) 


Find the length of the side labeled x . Round intermediate values to the nearest tenth.


21) 

22) 

23) 

24) 

25) 


26) 


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Geometry Name _____ ID: 1


Your pick the trigonometry ratio based on the information (SOHCAHTOA)


Find the value of each trigonometric ratio.


1) $\cos C$ 


2) $\sin d$ 


3) $\tan d$ 


4) $\sin d$ 


5) $\cos C$ 


6) $\tan C$ 


7) $\sin X$ 


8) $\tan C$ 


9) $\cos C$ 


10) $\sin C$ 


11) $\tan A$ 

12) $\cos A$ 

13) $\sin X$ 


14) $\cos Z$ 


15) $\sin C$ 

16) $\tan X$ 

A) $\frac{3}{4}$ B) $\frac{3}{5}$
C) $\frac{4}{5}$ D) $\frac{4}{3}$

A) $\frac{3}{5}$ B) $\frac{4}{5}$
C) $\frac{4}{3}$ D) $\frac{3}{4}$

17) $\sin X$ 

18) $\cos Z$ 


A) $\frac{4}{5}$ B) $\frac{5}{3}$
C) $\frac{3}{4}$ D) $\frac{4}{3}$


A) $\frac{3}{5}$ B) $\frac{4}{5}$
C) $\frac{4}{3}$ D) $\frac{3}{4}$


Geometry Name _____ ID: 1


Your pick the trigonometry ratio based on the information (SOHCAHTOA)


Find the value of each trigonometric ratio.


1) $\cos C$ 
 $\frac{9}{41}$


2) $\sin d$ 
 $\frac{4}{5}$


3) $\tan d$ 
 $\frac{20}{21}$


4) $\sin d$ 
 $\frac{35}{37}$


5) $\cos C$ 
 $\frac{15}{22}$


6) $\tan C$ 
 $\frac{5}{24}$


7) $\sin X$ 
 $\frac{4}{5}$


8) $\tan C$ 
 $\frac{4}{3}$


9) $\cos C$ 
 $\frac{20}{29}$


10) $\sin C$ 
 $\frac{3}{5}$


11) $\tan A$ 
 $\frac{21}{20}$


12) $\cos A$ 
 $\frac{12}{13}$

13) $\sin X$ 
 $\frac{4}{5}$

14) $\cos Z$ 
 $\frac{12}{13}$

15) $\sin C$ 
A) $\frac{3}{4}$ B) $\frac{3}{5}$
C) $\frac{4}{5}$ D) $\frac{4}{3}$

16) $\tan X$ 
A) $\frac{3}{5}$ B) $\frac{4}{5}$
C) $\frac{4}{3}$ D) $\frac{3}{4}$

17) $\sin X$ 
A) $\frac{4}{5}$ B) $\frac{5}{3}$
C) $\frac{3}{4}$ D) $\frac{4}{3}$

A) $\frac{3}{5}$ B) $\frac{4}{5}$
C) $\frac{4}{3}$ D) $\frac{3}{4}$

Geometry

Unit 1 - Transformations in the Coordinate Plane

Unit 2 - Similarity, Congruence, & Proofs

Unit 3 - Right Triangle Trigonometry

Pre-Calculus Honors

Pre-Calculus

AP Calculus

Online Edgenuity

ACT/SAT Prep

The trigonometric functions are: $\frac{\text{adj}}{\text{hyp}}$

sine, cosine, tangent, cotangent, secant, and cosecant.

UNIT 3 - RIGHT TRIANGLE TRIGONOMETRY

Students will apply similarity in right triangles to understand right triangle trigonometry. Students will use the Pythagorean Theorem and the relationship between the sine and cosine of complementary angles to solve problems involving right triangles.

The following will take you to activities that will provide a better understanding of materials in unit 3:

SOH CAH TOA explained, [Garrick](#) | Tangent Ratio explained, [Owens](#)

Sine Ratio explained, [VirtusNerd](#) | Cosine Ratio explained, [VirtusNerd](#)

Geometry, right triangle trig, [Brazzinski](#) | Geometry, right triangle trig, [ayob](#)

Practice for unit 3 materials:

Basic Trig Quiz 9 questions, [DuPreNews](#) | Basic Trig Quiz 17 questions, [Math15.com](#)

Basic Trig Word Problems 5, [multiple-choice](#)

Today! Some online practice!

Write your calculations/answers on a sheet of notebook paper, please!

Oct 4-10:27 AM

Unit 3 Quiz 1 - Missing Sides & Angles

Given triangle ABC, find the following six trig ratios, simplest form required.

1) $\sin A = \frac{\text{opp}}{\text{hyp}} = \frac{24}{26}$ 4) $\sin B = \frac{24}{26}$
 2) $\cos A = \frac{\text{adj}}{\text{hyp}} = \frac{10}{26}$ 5) $\cos B = \frac{10}{26}$
 3) $\tan A = \frac{\text{opp}}{\text{adj}} = \frac{24}{10}$ 6) $\tan B = \frac{24}{10}$



Round all remaining questions to two decimals. Use for questions 7 - 10.

In $\triangle ABC$, $m\angle ACB = 90^\circ$ and $\sin(B) = \frac{39}{92}$

7) Draw triangle ABC. 8) What is the length of BC?

9) What is $\cos A$? 10) What is $\tan A$?


11) Solve for x. 12) Solve for θ .


GSE GEOMETRY 1 | Page 4

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13) Solve for x and y.



14) Solve for all missing sides and all missing angles in the triangle below round to the nearest tenth.



15) Evaluate $\tan^{-1}(\sqrt{4096})$ 16) Is there an acute angle, such that $\sin A = \cos A$? If so, what is the measure of the angle?

GSE GEOMETRY 2 | Page 4

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Hertel/Williams/Lambert


TRIGONOMETRY PACKET GEOMETRY HONORS

Keep the letter you want to work out below in the triangles and either multiply (horizontal connection) or divide (vertical connection)!

SOH CAH TOA


S opp **H** hyp **sin**
C adj **H** hyp **cos**
T opp **A** adj **tan**

Hypotenuse Adjacent Opposite



Oct 4-10:31 AM

Example: The angle below. Find $\cos \theta$, $\sin \theta$, and $\tan \theta$.



2) A ladder leans against a wall. The angle between the ladder and the ground is 75° . The distance from the base of the ladder to the wall is 12 feet. How high is the ladder? Round to the nearest tenth.

3) A ladder leaning against a wall. The angle between the ladder and the ground is 60° . The distance from the base of the ladder to the wall is 10 feet. How high is the ladder? Round to the nearest tenth.

4) The angle between the ladder and the ground is 75° . The distance from the base of the ladder to the wall is 12 feet. How high is the ladder? Round to the nearest tenth.

5) A ladder leaning against a wall. The angle between the ladder and the ground is 60° . The distance from the base of the ladder to the wall is 10 feet. How high is the ladder? Round to the nearest tenth.

6) A ladder leaning against a wall. The angle between the ladder and the ground is 75° . The distance from the base of the ladder to the wall is 12 feet. How high is the ladder? Round to the nearest tenth.

7) A ladder leaning against a wall. The angle between the ladder and the ground is 60° . The distance from the base of the ladder to the wall is 10 feet. How high is the ladder? Round to the nearest tenth.

8) A ladder leaning against a wall. The angle between the ladder and the ground is 75° . The distance from the base of the ladder to the wall is 12 feet. How high is the ladder? Round to the nearest tenth.

9) A ladder leaning against a wall. The angle between the ladder and the ground is 60° . The distance from the base of the ladder to the wall is 10 feet. How high is the ladder? Round to the nearest tenth.

10) A ladder leaning against a wall. The angle between the ladder and the ground is 75° . The distance from the base of the ladder to the wall is 12 feet. How high is the ladder? Round to the nearest tenth.

11) A ladder leaning against a wall. The angle between the ladder and the ground is 60° . The distance from the base of the ladder to the wall is 10 feet. How high is the ladder? Round to the nearest tenth.

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16) A ladder leaning against a wall. The angle between the ladder and the ground is 75° . The distance from the base of the ladder to the wall is 12 feet. How high is the ladder? Round to the nearest tenth.

17) A ladder leaning against a wall. The angle between the ladder and the ground is 60° . The distance from the base of the ladder to the wall is 10 feet. How high is the ladder? Round to the nearest tenth.

18) A ladder leaning against a wall. The angle between the ladder and the ground is 75° . The distance from the base of the ladder to the wall is 12 feet. How high is the ladder? Round to the nearest tenth.

19) A ladder leaning against a wall. The angle between the ladder and the ground is 60° . The distance from the base of the ladder to the wall is 10 feet. How high is the ladder? Round to the nearest tenth.

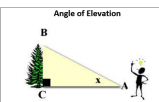
20) A ladder leaning against a wall. The angle between the ladder and the ground is 75° . The distance from the base of the ladder to the wall is 12 feet. How high is the ladder? Round to the nearest tenth.

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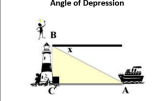
SWBAT: 1) Solve problems involving angle of elevation/depression, and 2) Express sine and cosine in terms of its CoFunction.

Real World Connection:
 Trigonometry can be used on a daily basis in the workplace. Since trigonometry means "triangle measure", any profession that deals with measurement deals with trigonometry as well. Carpenters, construction workers and engineers, for example, must possess a thorough understanding of trigonometry.

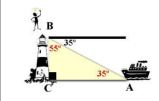
Angle of Elevation
 The angle of elevation is always measured from the ground up. Think of it like an elevator that only goes up. It is always INSIDE the triangle.
 In the diagram at the left, x marks the angle of elevation of the top of the tree as seen from a point on the ground.
 You can think of the angle of elevation as relation to the movement of your eyes. You are looking straight ahead and you must raise (elevator) your eyes to see the top of the tree.



Angle of Depression
 The angle of depression is always OUTSIDE the triangle. It is never inside the triangle.
 In the diagram at the left, x marks the angle of depression of a boat as seen from the top of a lighthouse.
 You can think of the angle of depression as relation to the movement of your eyes. You are standing at the top of the lighthouse and you are looking straight ahead. You must lower (depress) your eyes to see the boat in the water.



There are two possible ways to see our angle of depression to obtain an angle INSIDE the triangle.




1. Find the angle adjacent (next door) to our angle which is inside the triangle. The adjacent angle will always be the complement of our angle. Our angle and the angle next door will add to 90° . In the diagram on the left, the adjacent angle is 35° .

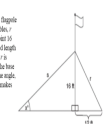
2. Utilize the fact that the angle of depression = the angle of elevation and simply take 90° as angle A. (The adjacent number) Just be sure to place it in the proper position.

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1) Find the angle of elevation of the pole if the distance from the ground to the top of the pole is 12 feet and the distance from the ground to the base of the pole is 5 feet.



2) The accompanying diagram shows a flagpole that stands on level ground. The cables, 17 feet long, are stretched to the top of a person's head above the ground. The vertical height of the pole is 12 feet. How far is the pole from the person's head? Round to the nearest tenth.




3) From a point on the ground 25 feet from the foot of a tree, the angle of elevation of the top of the tree is 32° . Find to the nearest foot, the height of the tree.



4) A lookout spots a fire 32 meters lower. The angle of depression from the lookout to the fire is 13 degrees. To the nearest meter, how far is the fire from the base of the tower?

5) Find the value of θ for which $\sin \theta = \cos 35^\circ$ is true.

6) Refer to the triangle below:



a) What is the relationship between $m\angle A$ and $m\angle B$? _____
 b) What is the $\cos A$? _____ What is the $\sin B$? _____
 c) What is the $\sin A$? _____ What is the $\cos B$? _____

What do you notice about the cosine and sine of complements?

Oct 4-10:37 AM

1) $\sin 15^\circ = \cos 75^\circ$
This is true since $15 + 75 = 90$.

2) $\cos 40^\circ = \sin \underline{\hspace{1cm}}$

3) $\cos 8^\circ =$

4) $\sin 26^\circ =$

5) $\sin 43^\circ = \cos$

6) $\cos 2^\circ =$

7) $\cos 17^\circ =$

8) $\sin 70^\circ =$

Oct 4-10:40 AM



Oct 4-10:55 AM