

SOHCAHTOA October 8, 2018, Monday

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

Find the missing side. Round to the nearest tenth.

Find the value of each trigonometric ratio.

Oct 4-10:42 AM

SOHCAHTOA

Math 2 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:

- Solve for x .
- 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 to the car.
- A ramp has an angle of elevation of 20° . It has a vertical height of 1.8 m. What is the length of ramp?

Oct 5-1:52 PM

B-Level Problems:

- 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?
- 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:

- 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 angle of the cliff is 80.0 m, find the distance between A and B.

Answers: 1. 19.1 2. 322.2 3. 5.3m 4. 604.48 5. 300m² 6. 58.6m

Oct 5-1:52 PM

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.

Choose 1 from the left & 1 from the right!

Oct 8-1:40 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)

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)

Oct 5-1:54 PM

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) $\sin A$

3) $\tan A$

4) $\sin A$

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) $\frac{4}{3}$

17) $\sin X$

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

18) $\cos Z$

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) $\cos C$

2) $\sin A$

3) $\tan A$

4) $\sin A$

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) $\frac{4}{3}$

17) $\sin X$

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

18) $\cos Z$

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

https://www.mathworksheetsland.com/unit3/right-triangle-trigonometry.html

Unit 1 - Transformations in the Coordinate Plane
Unit 2 - Similarity, Congruence, Solids
Unit 3 - Right Triangle Trigonometry
Pre-Calculus/Honors Precalculus
AP Calculus
Online Edgenuity
ACT/SAT Prep

The trigonometric functions are: adj
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, Gamick
Tangent Ratio explained, Owens
Sine Ratio explained, Virtualland
Cosine Ratio explained, Virtualland
Geogebra, right triangle trig, Birzessini
Geogebra, right triangle trig, ayoub

Practice for unit 3 materials:
Basic Trig Quiz 9 questions, Buzzfeednews
Basic Trig Quiz 17 questions, Math10.com
Basic Trig Word Problems 5, Multiverse.com


Today! Some online practice!
Write your calculations/answers on a sheet of notebook paper, please!

Oct 4-10:27 AM


October 10, 2018, Wednesday

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?

Find x

23) 

1) $\cos A = \frac{adj}{hyp}$




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

Oct 9-1:26 PM

SG
Unit 5 **Chapter 1 - Missing Sides & Angles** Name _____

Given triangle ABC, find the following in **simplest form** required.


1) $\sin A = \frac{10}{24}$ 4) $\sin B = \frac{25}{29}$
2) $\cos A = \frac{24}{29}$ 5) $\cos B = \frac{10}{29}$
3) $\tan A = \frac{10}{24}$ 6) $\tan B = \frac{10}{24}$



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

In $\triangle ABC$, $m\angle ACB = 90^\circ$ and $\sin(B) = \frac{39}{89}$.

7) Draw triangle ABC.



8) What is the length of BC?

$a^2 + b^2 = c^2$
 $39^2 + b^2 = 89^2$
 $1521 + b^2 = 7921$
 $b^2 = 6400$
 $b = 80$


9) What is $\cos(A)$?

$\cos A = \frac{adj}{hyp} = \frac{80}{89}$

10) What is $\tan(A)$?


$\tan A = \frac{39}{80}$

11) Solve for x.



$\cos \theta = \frac{adj}{hyp} = \frac{13}{x}$
 $x \cos 16 = 13$
 $x = \frac{13}{\cos 16} = 8.3$

12) Solve for theta.



$\tan \theta = \frac{opposite}{adjacent} = \frac{13}{17}$
 $\theta = \tan^{-1}(\frac{13}{17}) = 43.1^\circ$

OSE GEOMETRY 1 | Page 6


Oct 4-10:27 AM

13) Solve for x and y.

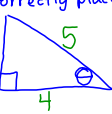
$\cos \theta = \frac{adj}{hyp}$
 $29 \cos 19 = \frac{x}{29}$
 $27.4 = x$

$\sin \theta = \frac{opposite}{hyp}$
 $29 \sin 19 = \frac{y}{29}$
 $9.4 = y$

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



Draw \triangle ...
 $\cos \theta = \frac{adj}{hyp} = \frac{4}{5}$
Correctly place $\theta, 4, 5$



15) Evaluate $\tan^{-1}(\frac{4096}{89.1})$

~~89.1~~
89.1
89.10

OSE GEOMETRY 2 | Page 6

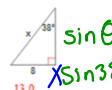
Oct 4-10:27 AM

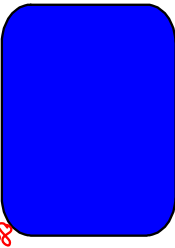
October 11, 2018 Thursday

Find x

$\cos \theta = \frac{adj}{hyp}$
 $\tan \theta = \frac{opposite}{adjacent}$

$\sin \theta = \frac{opposite}{hyp}$
 $x \sin 38 = \frac{8}{13}$
 $x = \frac{8}{\sin 38} = 13$



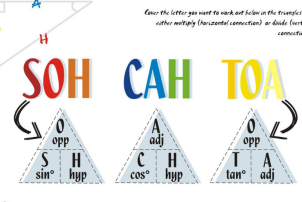


Oct 11-8:15 AM

Hertel/Williams/Lambert

TRIGONOMETRY PACKET
GEOMETRY HONORS

SOH CAH TOA




Hypotenuse Adjacent Opposite


Oct 4-10:31 AM

October 12, 2018, Friday

$\cos C =$



Find x



Oct 11-11:04 AM

Example: Find each side length.

Example 2: Find the height of the building.

Example 3: Find the height of the pole.

Example 4: Find the height of the tower.

Example 5: Find the height of the tower.

Example 6: Find the height of the tower.

Example 7: Find the height of the tower.

Example 8: Find the height of the tower.

Example 9: Find the height of the tower.

Example 10: Find the height of the tower.

Example 11: Find the height of the tower.

Example 12: Find the height of the tower.

Example 13: Find the height of the tower.

Example 14: Find the height of the tower.

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Example 32: Find the height of the tower.

Example 33: Find the height of the tower.

Example 34: Find the height of the tower.

Example 35: Find the height of the tower.

Example 36: Find the height of the tower.

Example 37: Find the height of the tower.

Example 38: Find the height of the tower.

Example 39: Find the height of the tower.

Example 40: Find the height of the tower.

Example 41: Find the height of the tower.

Example 42: Find the height of the tower.

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Example 93: Find the height of the tower.

Example 94: Find the height of the tower.

Example 95: Find the height of the tower.

Example 96: Find the height of the tower.

Example 97: Find the height of the tower.

Example 98: Find the height of the tower.

Example 99: Find the height of the tower.

Example 100: Find the height of the tower.

Oct 4-10:31 AM

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.

<p>Angle of Elevation</p>	<p>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.</p> <p>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.</p> <p>You can think of the angle of elevation in 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.</p>
<p>Angle of Depression</p>	<p>The angle of depression is always OUTSIDE the triangle. It is never inside the triangle.</p> <p>In the diagram at the left, x marks the angle of depression of a boat as seen from the top of a lighthouse.</p> <p>You can think of the angle of depression in 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.</p>
	<p>There are two possible ways to use an angle of depression to obtain an angle INSIDE the triangle.</p> <ol style="list-style-type: none"> 1. Find the angle adjacent (next door) to our angle which is inside the triangle. This 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 15°. 2. Chisel the fact that the angle of depression = the angle of elevation and simply place 15° in angle A. Be careful! Just be sure to place it in the proper position.

Oct 4-10:38 AM

1) Find the height of pole p and the measure of angle θ , as shown in the diagram. Give each answer correct to the nearest whole number or tenth.

Example 1: From an airplane 6000 ft above the ground, you see a landing strip at an angle of depression of 24° . Measure the distance along the ground, how far are you from the landing strip? Round your answer to the nearest hundredth.

2) From a point on the ground 25 feet from the foot of a tree, the angle of elevation of the tree is 24° . Find to the nearest foot, the height of the tree.

3) To find the height of a pole, a surveyor moves 80 feet away from the base of the pole and then, with a transit 4 feet tall, measures the angle of elevation to the top of the pole to be 57° . What is the height of the pole? Round answers to the nearest foot.

Example 2: 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) $\sin 15^\circ = \cos 75^\circ$

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

This is true since $15 + 75 = 90$.

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

Blank page for student work.

Oct 4-10:55 AM