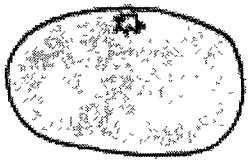
Chapter 7B
Trigonometry
Geometry Pap

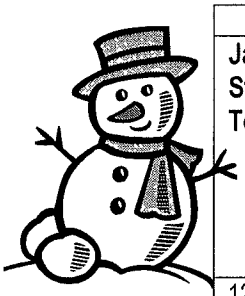
$$\frac{\sin(\text{gerine})}{\cos(\text{gerine})} = \text{  }$$

name _____

period _____

teacher _____

Westside School, Geometry PAP
2014-2015 Fourth Six Weeks – all dates are subject to change



Monday	Tuesday	Wednesday	Thursday	Friday
January 5 **Student Holiday / Teacher Workday**	6 7.1/7 2 Working with Pythagorean theorem HW. Wksht 7 1 C and Wksht 7.2 Give out recitation project	7 Radicals Review HW: Wksht Radicals Review day 1 & 2	8 Radicals Review HW: Wksht Radicals Review day 1 & 2	9 7 3 Similar right triangles (MBD) HW. Worksheet 7 3 Sim Right Triangles
12 7 4 Special right triangles 45-45-90 HW. Wksht 45-45-90 Day 1	13 7 4 Special right triangles 30-60-90 HW. Wksht 30-60-90 Day 1	14 Combo day Very Special Special Right Triangles **Quiz** HW: Combo Day and Very Special worksht	15 Combo day Very Special Special Right Triangles **Quiz** HW: Combo Day and Very Special worksht	16 Review **Recitation is due!** **HW: Study**
19 **MLK HOLIDAY** 	20 **Test #10** HW. **EOC Practice #1**	21 7.5-7 7 Trigonometry **Formula Quiz** HW. Wksht Trig Day 1	22 7 5-7 7 Trigonometry **Formula Quiz** HW. Wksht Trig Day 1	23 7 5-7 7 More Trigonometry HW. Wksht Trig Day 2
26 7 5-7 7 Trig Word problems HW. Wksht Trig Word Prob 1 & 2, & Depressing probs	27 7 5-7 7 More Trig Word problems HW: Wksht Trig Word Problems 3 4,& Depressing probs	28 **Quiz** Review Trig HW: Review	29 **Quiz** Review Trig HW: Review	30 **Test #11** HW **EOC Practice #2**
February 2 11 1 Area of parallelograms and Triangles HW: Herons (odd), 11.1 Prac. C, page 4-5 #1-5, 8,10,15, 18	3 11 2 Area of rhombus Kites, and trapezoids HW. 11 2 Prac C ,page 4-5 #6,7,9, 11-18	4 More 11 1-11 2 **Formula Quiz** **EOC #2 Due** HW Word Prob Area Wksht 11.1-11 3 #1-13	5 More 11 1-11 2 **Formula Quiz** **EOC #2 Due** HW: Word Prob Area Wksht 11 1-11 3 #1-13	6 11 3 Perimeter and Area of Similar figures HW: 11 3 Prac C ,challen Prac, page 14 #14-23
9 Review Chapter 11 1-11 3 HW. Review	10 **Test #12** HW: **EOC Practice #3**	11 11.4 Circumference and Arc Length HW: Complete 11 4	12 11 4 Circumference and Arc Length HW . Complete 11 4	13 11 5 Areas of Circles and Sectors HW Complete 11 5
16 11 6 Area of Regular Polygons day 1 HW: Complete day 1	17 11 6 Area of Regular Polygons day 2 **EOC #3 Due** HW: Complete day 2	18 11 6 Area of Regular Polygons day 3 Quiz HW. Complete 11.6	19 11 6 Area of Regular Polygons day 3 Quiz HW. Complete 11 6	20 Review Chapter 11 **Formula Quiz** HW. Review

Overview Chapter 7 Trigonometry

1) What are the 3 trig ratios? **Sine, Cosine, Tangent**

2) What is the ratio for Sine? What do people confuse this with? $\frac{Opposite\ Leg\ of\ \angle}{Hypotenuse}$

   People confuse the abbreviation of Sine with "Sin"

3) What is the algebraic setup of Sine? $Sine\ \angle = \frac{Opposite\ Leg\ of\ \angle}{Hypotenuse}$

4) What is the ratio for Cosine? $\frac{Adjacent\ Leg\ of\ \angle}{Hypotenuse}$

5) What is the algebraic setup of Cosine? $Cosine\ \angle = \frac{Adjacent\ Leg\ of\ \angle}{Hypotenuse}$

6) What is the ratio for Tangent? $\frac{Opposite\ Leg\ of\ \angle}{Adjacent\ Leg\ of\ \angle}$

7) What is the algebraic setup of Tangent? $Tangent\ \angle = \frac{Opposite\ Leg\ of\ \angle}{Adjacent\ Leg\ of\ \angle}$

8) How do you determine if a side is the hypotenuse? **The side opposite of the right angle.**

9) What determines if a side is opposite or adjacent? **The angle that you are choosing to do the trig with.**

10) What does SOHCAHTOA stand for? **S**ine, **O**pposite/**H**ypotenuse, **C**osine, **A**djacent/**H**ypotenuse, **T**angent, **O**pposite/**A**djacent

11) What does Oh Heck Another Hour Of Algebra stand for? **It is another acronym for Trig.**

12) What is the difference in finding a side as oppose to finding an angle? **When finding an angle, the chart is used backwards. Find the value of the ratio and look on the chart to see what angle measure has that value or close to that value.**

13) How do you reset your calculator? **2^{nd} ,+,7,1,2**

14) What must your calculator be set on before you do Trig? **In the mode change from radians to degrees.**

15) What must you do differently on the calculator when trying to find an angle? **Use inverse function (x^{-1}) of the trig function then the ratio.**

16) What is the default position when standing? **Eyes will be looking out to the horizon. (horizontal Line)**

17) What is an angle of depression? **An angle going down from the horizontal line.**

18) What is an angle of elevation? **An angle going up from the horizontal line.**

19) Both angle of elevation and depression are always connected to a **(Horizontal)** line.

20) How do you know the difference between the angle of elevation and depression? **By reading the problem and the problem will say elevation or depression.**

21) When a problem does not say elevation or depression, then how do you know what do draw? **You will have to read the problem and draw the situation.**

22) What are the rules for division of radicals?

1) **No radical in the denominator.**
2) **All radicals simplified.**
3) **All fractions reduced.**

23) When should you simplify a fraction or radical? **Simplify the radical at the beginning if possible, always check when finishing a problem to see if the radical or fraction can be reduced.**

Notes for Trigonometry

Trig Functions:

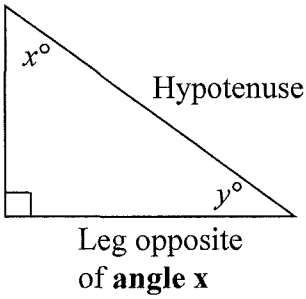
Sine Cosine Tangent

All Trig functions are used for right triangles only. Each one is a proportion and when working the problem should be cross multiplied and solved.

Sine $x°=$

Cosine $x°=$

Tangent $x°=$



If you use a different angle, then the adjacent and opposite legs reverse. You never use the right angle for trig and the hypotenuse never changes position.

Mnemonic for remember the trig functions

SOHCAHTOA

S-
O-
H-
C-
A-
H-
T-
O-
A-

$$\text{Sin } x° = \frac{O}{H}$$

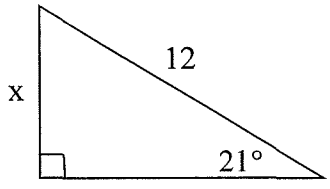
$$\text{Cos } x° = \frac{A}{H}$$

$$\text{Tan } x° = \frac{O}{A}$$

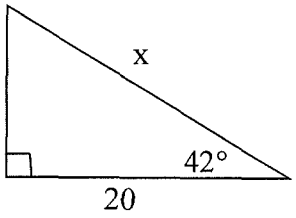
There are two types of trig problems. One you find the missing side, the other your find the missing angle. Each one is worked a different way, so look at the examples carefully.

Example 1 Using _____

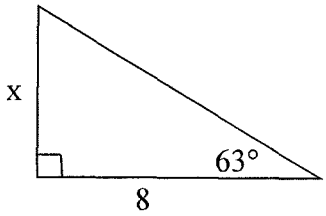
Find x.



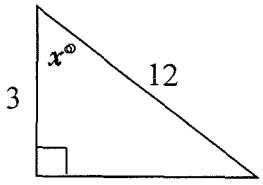
Example 2 Using _____
Find x.



Example 3 Using _____
Find x.



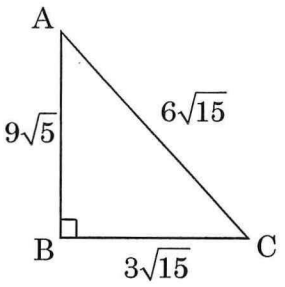
Example 4 Find the missing angle

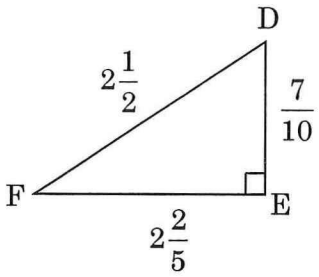


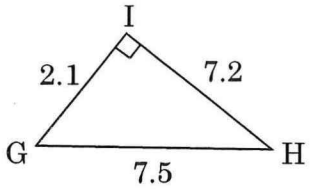
Practice on Trig Ratios

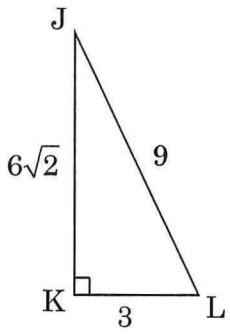
Period _____ Name _____

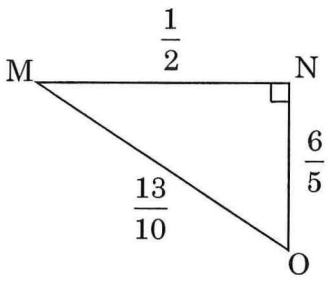
Use the following triangles to determine the trig ratios below. Simplify all fractions, rationalize and simplify all radicals, and convert all decimal answers to fractions.

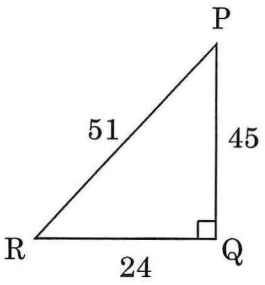


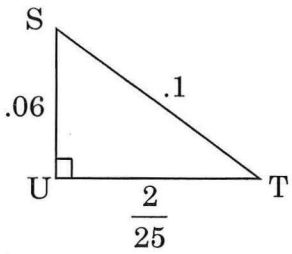


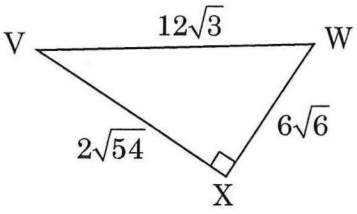












1) *Sin A* = _____

2) *Cos G* = _____

3) *Tan M* = _____

4) *Sin S* = _____

5) *Cos D* = _____

6) *Tan W* = _____

7) *Sin J* = _____

8) *Cos V* = _____

9) *Tan C* = _____

10) *Sin P* = _____

11) *Cos L* = _____

12) *Tan R* = _____

13) *Sin F* = _____

14) *Cos O* = _____

15) *Tan T* = _____

16) *Sin H* = _____

17) *Cos C* = _____

18) *Tan H* = _____

19) *Sin T* = _____

20) *Cos F* = _____

21) *Tan P* = _____

22) *Sin M* = _____

23) *Cos W* = _____

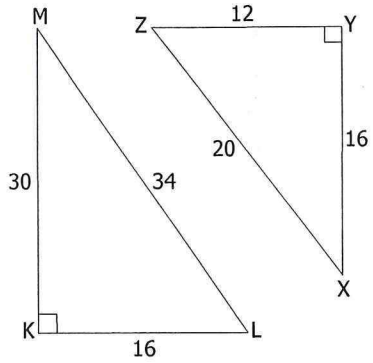
24) *Tan L* = _____

Trigonometry Section 7.5/7.6

Name _____

Period _____

Use the figures below to answer 1-6. Find the ratio for each given Trig. function.



1. sin∠M
2. cos∠Z
3. tan∠L
4. sin∠X
5. cos∠L
6. tan∠Z

Find the value of each ratio. Round your answers to 4 places past the decimal.

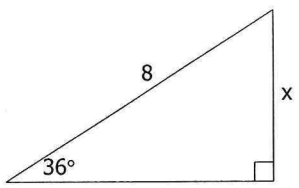
7. sin 12°
8. cos 32°
9. tan 74°
10. sin 55°
11. sin 7°
12. cos 24°
13. tan 54°
14. tan 52°
15. sin 72°
16. cos 52°
17. tan 20°
18. sin 14°

Find the measure of each angle to the nearest whole degree.

19. sine A = 0.7245
20. cos B = 0.2493
21. tan C = 9.4618
22. sin D = 0.4567
23. cos E = 0.1212
24. tan R = 0.4279

Find the values of "x" . Round sides to 4 places past decimal and angles to the nearest whole degree.

25.



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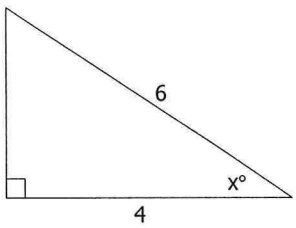

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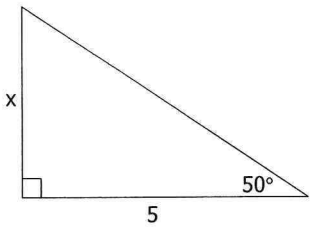

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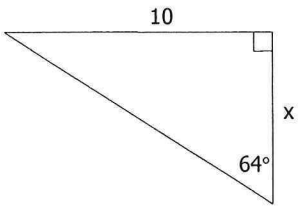

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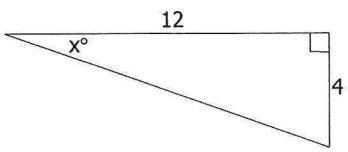

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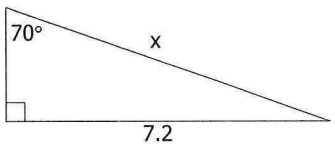
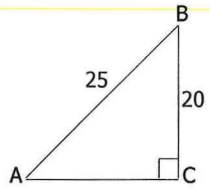


Find the measure of ∠A and ∠B. Round answers to the nearest whole degree.

31.



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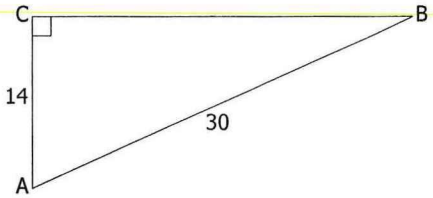
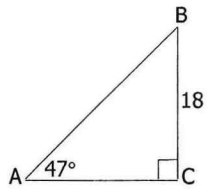


Find the length of the hypotenuse. Round answers to 4 places past the decimal.

33.



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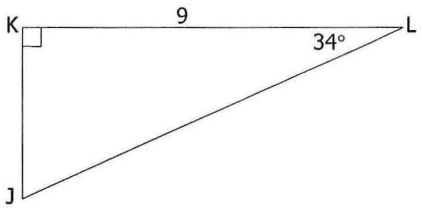
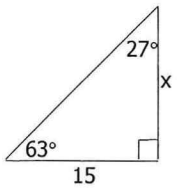


Set up an equation and then solve for "x". Round answers to 4 places past the decimal.

35.



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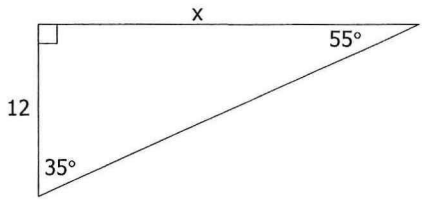
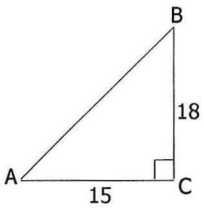


Find the measure of ∠A and ∠B. Round answers to 4 places past the decimal.

37.



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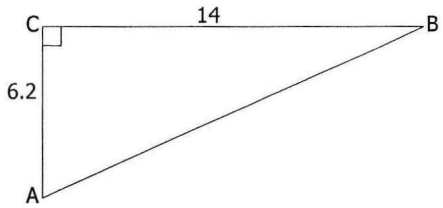
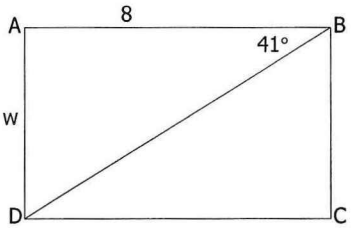
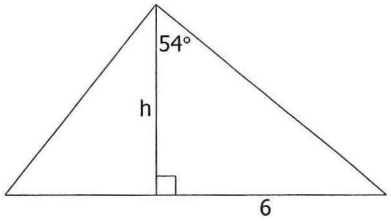


39. Find the width of rectangle of ABCD.



40. Find the length of the altitude the triangle below.

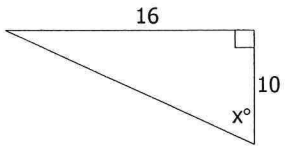


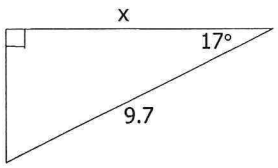
More Practice with Trig Section 7.5/7.6

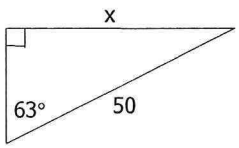
Name _____

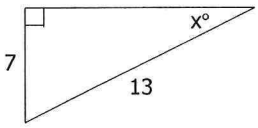
Period _____

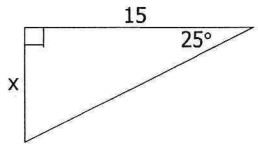
Find the value of "x". Round sides to 4 places past the decimal and angles to the nearest whole degree.

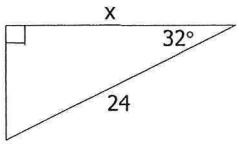
1. 

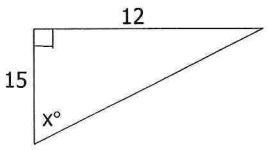
2. 

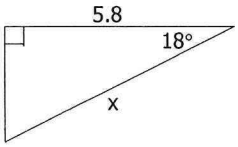
3. 

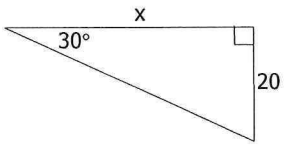
4. 

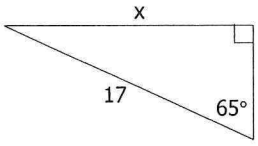
5. 

6. 

7. 

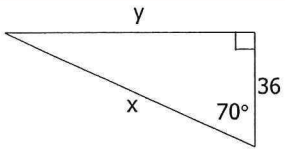
8. 

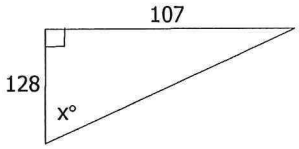
9. 

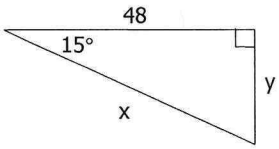
10. 

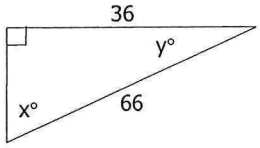
6

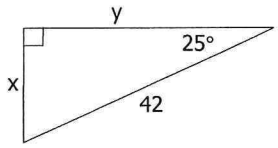
Find x and y. Round sides to the nearest ten thousandths and angles to the nearest degree.

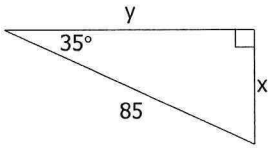
11. 

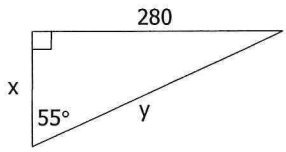
12. 

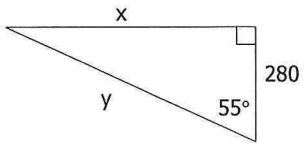
13. 

14. 

15. 

16. 

17. 

18. 

Word problems that will elevate your mood or depress you mathematical skills

Important Terms:

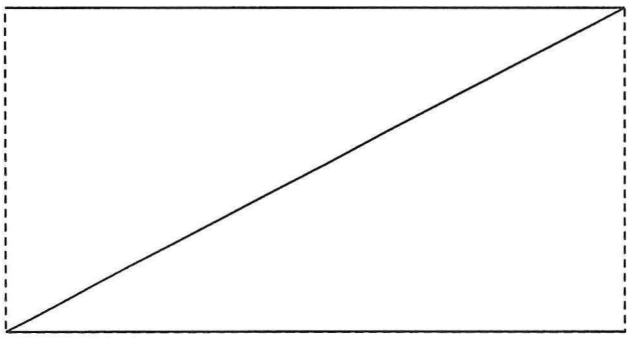
Angle of elevation – An angle formed by a horizontal line and the line of sight to an object above the level of the horizontal.(when looking up at something)

Examples:

Angle of depression – An angle formed by a horizontal line and the line of sight to an object below the level of the horizontal.(when looking down at something.

Examples:

Label the angles of this figure:



Draw a Picture for each, then find answer. Sides to the nearest hundredth, angles to the nearest degree.

A surveyor is standing 100 meters from a bridge. She determines that the angle of elevation to the top of the bridge is $35°$. If her height is 2.5 meters tall, then what is the height of the bridge?

From the top of a lighthouse, the angle of depression to a buoy is $25°$. If the top of the lighthouse is 150 feet above sea level, find the horizontal distance from the buoy to the lighthouse.

A jet takes off and travels 56 miles to achieve an altitude of 12.6 miles. What is the angle of elevation for the jets path?

Avery is at the top of the Eiffel tower. When looking out she sees the Seine River at an angle of depression of $62°$. The height of the tower is 324 meters. What is the horizontal distance from the Eiffel Tower to the River.

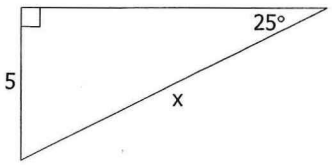
Weapon of Math Destruction Trig. Day 1

Name _____

Period _____

Solve the following problems. Round segment lengths to 4 places past the decimal and angle measures to the nearest whole degree. For each problem, draw and label a picture AND set up the appropriate trigonometric ratio.

1. Find "x".



1. _____

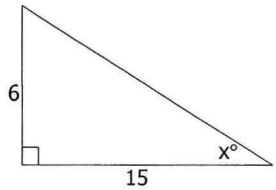
2. How tall is a tree if it casts a shadow of 50 feet and they rays of the sun meet the ground at a 25° angle?

2. _____

3. A sonar operator on a battleship detects a submarine at a distance of 500 m(horizontally) and at an angle of depression of 37°. How deep is the sub?*

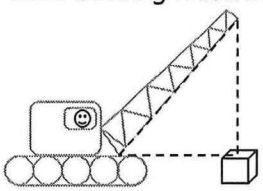
3. _____

4. Find the measure of the indicated angle.



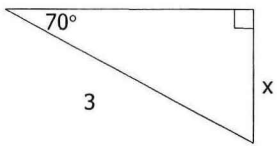
4. _____

5. The angle of elevation of a 110 foot crane is 45°. How high can the crane raise building material?



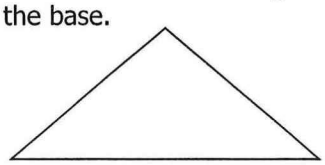
5. _____

6. Find "x" .



6. _____

7. The altitude of an isosceles triangle is 15 cm. If the vertex angle is 64°, find the length of the base.



7. _____

8. A boy flying a kite lets out 100 feet of string making an angle of elevation of 40°. How high above the ground is the kite?*

8. _____

9. As viewed from a cliff 360 m above sea level, the angle of depression to a ship is 28°. How far is the ship from the shore?

9. _____

10. The angle of elevation from a ship to the top of a lighthouse is 3°. If the ship is 1,000 km from the lighthouse, how tall is the lighthouse?*

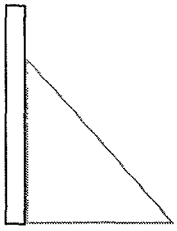
10. _____

11. A person hang gliding at an altitude of 300 feet is over a spot 2,250 feet from an area of soft grass where he would like to land. At what angle of depression should he see the grass?*

11. _____

12. A 12 ft guy wire is attached to a telephone pole at a point 9.5 feet below the top of the pole. If the wire forms a 51° angle with the ground, how high is the telephone pole?

12. _____



13. From a lighthouse 1,000 ft above sea level, the angle of depression to a boat is 29°. The boat is moving forward and one minute later the angle of depression is 44°. How far has the boat traveled?(work problem twice once with each angle and compare)

13. _____

Oh Heck Another Hour Of Algebra Trig. Day 2

Name _____

Period _____

Solve the following problems. Round segment lengths to 4 places past the decimal and angle measures to the nearest whole degree. For each problem, draw and label a picture AND set up the appropriate trigonometric ratio.

1. A 16-foot ladder leaning against a wall of a house makes a 64° angle with the wall. How far up the wall will the ladder reach?

1. _____

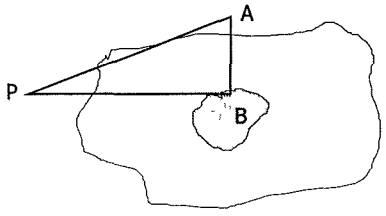
2. A kite is flying at an angle of 42° with the ground. 70 meters of string have been let out. Find the height of the kite.

2. _____

3. A truck drives down a 30-meter decline. The angle of depression of the decline is 23°. How high is the truck above ground level?*

3. _____

4. To find the distance from point A on the shore of a lake to point B on an island in the lake, surveyors locate point P so that m∠PAB=62° and m∠APB=28°. If the distance from P to A is 350 feet, find the distance from point A on the shore to point B on the island.



4. _____

5. At 8:00 am, a building casts a shadow 75 feet long. The angle where the ray from the sun met the ground is 50°. How tall is the building?

5. _____

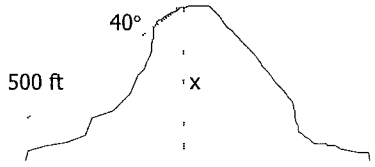
6. An escalator from the ground floor to the second floor of a department store is 110 feet long and rises 32 feet vertically. What angle does the escalator make with the ground floor?

6. _____

7. A ladder on a fire truck has its base 8 feet above the ground. The maximum length of the ladder is 100 feet. If the greatest acute angle the ladder can make with the truck is 70°, what is the highest it can reach? (don't forget: the ladder sits on top of a truck that is 8-feet tall).

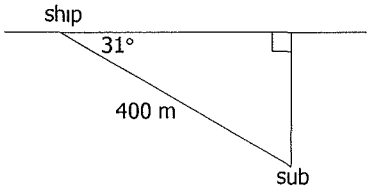
7. _____

8. Refer to the diagram below. Determine the height of the hill. Is the 40 degree angle elevation or depression?*



8. _____

9. Refer to the picture below. The angle of depression from a ship to a submarine is 31 degrees. Once SONAR waves are measured the distance from the ship straight to the submarine is 400 meters. What is the depth of the submarine?*

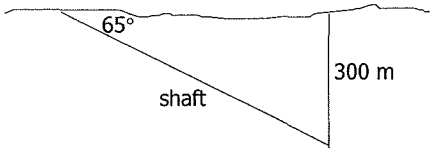


9. _____

10. A rock that is dropped 182 feet from the top of the Leaning Tower of Pisa falls to a point 14 feet from the tower base. What angle does the tower make with the ground?

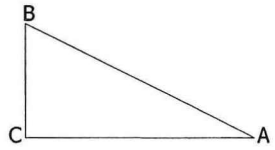
10. _____

11. A mine shaft is 300 m deep and has an angle of depression of 65°. How long is the shaft?



11. _____

12. Lighthouse C is due west from a ship located at point A. Lighthouse B, which is due north of C, is situated such that m∠CAB=26° and the distance between the two lighthouses is 13 kilometers. How far is the ship from lighthouse B?

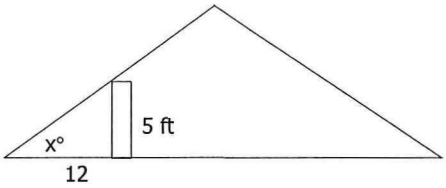


12. _____

13. Find the angle of elevation that a 30-foot ladder, leaning against a wall, if the bottom of the ladder is 9 feet from the base of the wall.*

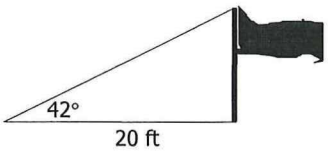
13. _____

14. Because of the pitch of the attic's roof, a bookcase that is 5 feet high must be place as shown. What is the measure of the angle formed by the roof and the floor of the attic?



14. _____

15. Determine the height of the flagpole shown in the figure.

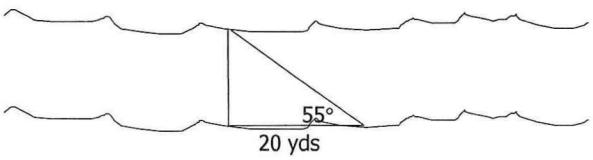


15. _____

16. A kite has 70 m of string let out. The string has an angle of elevation of 38°. How far above the ground is the kite?*

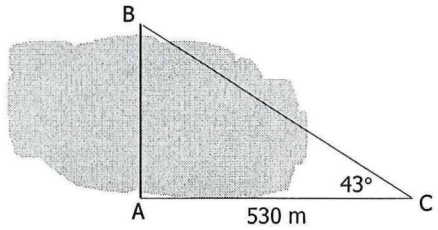
16. _____

17. Refer to the picture below. How wide is the river?



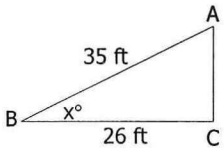
17. _____

18. In order to construct a bridge across a lake, an engineer wishes to determine AB. The surveyor found that AC=530 and m∠C=43°. If angle A is a right angle, find the distance across the lake.



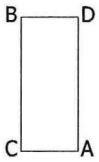
18. _____

19. A scout troop built a frame for a lean-to as shown below. In the right triangle formed by one side of the lean-to, BC=26 ft and AB=35 ft. Find the m∠B.



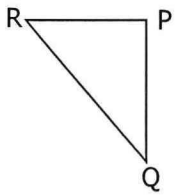
19. _____

20. Find the height of the door shown if m∠CAB=65° and CA=3 ft.



20. _____

21. Points P and Q are on the north and south rims, respectively, of the Grand Canyon. Point Q is directly south of point P. Point R is located 780 m east of P. The m∠PRQ=84°. Find the width of the canyon.



21. _____

Angles that are Raised and Angles that are Sad Day 3

Name _____

Period _____

Solve each problem. Round measures of segments to 4 places past the decimal and measures of angles to the nearest whole degree.

1. From the top of a tower, the angle of depression to a stake on the ground is 72°. The top of the tower is 80 feet above ground. How far is the stake from the foot of the tower?

2. A tree 40 feet high casts a shadow 58 feet long. Find the measure of the angle of elevation of the sun.

3. A ladder leaning against a house creates an angle of elevation of 60°. The foot of the ladder is 7 feet from the foundation of the house. How long is the ladder.

4. A balloon on a 40-foot string makes an angle of 50° with the ground. How high above the ground is the balloon?

5. A 20-foot ladder leans against a wall so that the base of the ladder is 8 feet from the base of the building. What angle of depression does the ladder create?

6. A 50-meter vertical tower is braced with a cable secured at the top of the tower and tied 30 meters away from the base. What angle does the cable form with the vertical tower?

7. At a point on the ground 50 feet from the foot of a tree, the angle of elevation to the top of the tree is 53°. Find the height of the tree.

8. From the top of a lighthouse 210 feet high, the angle of depression of a boat is 27°. Find the distance from the boat to the foot of the lighthouse. The lighthouse was built at sea level.

9. Richard is flying a kite. The kite string makes an angle of 57° with the ground. If Richard is standing 100 feet from the point on the ground directly below the kite, find the length of the kite string.

10. An airplane rises vertically 1,000 feet over a horizontal distance of 1 mile. What is the angle of elevation of the airplane's path? 1 mile = 5,280 feet.

11. The angle of elevation from a ship to the top of a cliff is 38°. If the ship is 80 feet from the base of the cliff, how high is the cliff?

12. The angle of elevation of a helicopter from a ship is 35°. The altitude of the helicopter is 2800m. How far is the ship from the buoy which is anchored directly below the helicopter?

13. The top of a lighthouse is 110 m above the water. The angle of depression from the top of the lighthouse to a fishing boat is 18°. How far is the boat from the base of the lighthouse?

14. The angle of elevation of an airplane is 9°. The ground distance to the plane is 21km. How high is the plane?

15. An observation tower is 98m tall. The angle of depression from the top of the tower to a hiker is 23°. How far is the hiker from the tower base?

Angles that will depress and word problems that will elevate Day 4

Name _____

1) At a point on the ground 50 feet from the foot of a tree, the angle of elevation of the top of the tree is **48°**. Logger must attach a rope at the top of the tree so that they can pull the tree the direction they want the tree to fall. How long must that rope be if they can get the rope to the top of the tree?*

2) A ladder is leaning against a wall. The foot of the ladder is 6.5 feet from the wall. The ladder makes an angle of **74°** with the level ground. How long is the ladder?*

3) A boy visiting New York City views the Empire State Building from a point on the ground, A, which is 940 feet from the foot, C, of the building. The angle of elevation of the top, B, of the building as seen by the boy contains **53°**. Find the height of the building to the nearest foot.

4) The shadow of a vertical post is 18 feet long and the angle of elevation of a wire to the top is **38°**. How long is the wire?*

5) From the top of a lighthouse 160 feet high, the angle of depression of a boat out at sea is an angle of **24°**. Find to the nearest foot the distance from the boat to the foot of the lighthouse, the foot of the lighthouse being at sea level.

6) Find to the nearest degree the measure of the angle of elevation of the sun when a boy 5 feet tall casts a shadow 4 feet long.

7) A ladder leans against a building. The top of the ladder reaches a point of the building which is 18 feet above the ground. The foot of the ladder is 7 feet from the building. Find to the nearest degree the measure of the angle which the ladder makes with the level ground.

8) A boy who is flying a kite lets out 300 feet of string which makes an angle of **38°** with the ground. Assuming that the string is straight, how high above ground is the kite?

9) A road is inclined **8°** to the horizontal. Find to the nearest foot the distance one must drive up this road to increase one's altitude 1000 feet.

10) A ladder 25 feet long leans against a building and is 12.6 feet from the base of the building. Find to the nearest degree the angle which the ladder makes with the ground.*

11) A wooden beam 24 feet long leans against a wall and makes an angle of **71°** with the ground. Find to the nearest foot how high up the wall the beams reaches.

12) From an airplane which is flying at an altitude of 3000 feet, the angle of depression of an airport ground signal is an angle of **27°**. Find to the nearest foot the distance between the airplane and the airport ground signal.

13) An airplane climbs at an angle of **11°** with the ground. Find to the nearest foot the distance it has traveled when it has attained an altitude of 400 feet.

14) After takeoff, a plane flies in a straight line for a distance of 4000 feet in order to gain an altitude of 800 feet. Find to the nearest degree the number of degrees contained in the angle which the rising plane makes with the ground.

15) Find to the nearest foot the height of a church spire that casts a shadow of 50 feet when the angle of elevation of the sun is **68°**.

16) The diagonals of a rectangle are each 22 and intersect at an angle of **110°**. Find to the nearest integer the sides of the rectangle.

17) In rectangle ABCD, diagonal $\overline{AC}$ is 11 and side $\overline{AB}$ is 7. Find the degree measure of angle CAB to the nearest degree.

18) At a point on the ground 100 feet from the foot of a flagpole, the angle of elevation of the top of the pole is **31°**. What is the length of the wire attached to the top of the pole to the nearest foot.*

Depressing Problems with Uplifting Answers Name _____

1) A plane is flying at an altitude of 12 miles and the pilot spots a fire at a depression angle of 36°. What is the horizontal distance to the fire?

2) The waterwall at the Transco Tower is 47.2 feet from the base of the building. The angle of depression from the top of the tower is 87°, then what is the height of the tower to the nearest foot?

3) A person is standing on the third floor of the Galleria and has an angle of depression of 22° to the edge of the ice skating rink. The rink starts under the person and is 110 feet long. How high is the person to the nearest foot.

4) An escalator is 124 feet long and goes from the 1st floor of the mall to the 2nd floor. If the height between floors is 20 feet, then what is the angle of depression from the 2nd floor to the 1st floor?

5) At Bounce U the inflatable slide has a height of 20 feet and creates a depression angle of 54°. What is the length of the slide to the nearest foot?

6) A ball is rolling down a hill that is 424 feet long and has a height of 38 feet. What is the angle of depression for the hill? If it takes the ball 3 minutes to get to the bottom, then fast is it going in feet per seconds?

7) The average height of each floor of an office building is about 12 feet. If a person is on the 4th floor of a building and spots a cool car at a angle of depression of 26°, then how far would that car be from the building.

20

8) A wire goes from the top of a tower that is 40 feet high and is anchored to the ground at an angle of depression of 64°. How long is the wire?

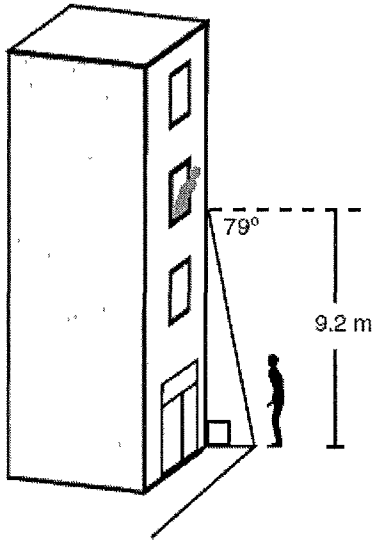
9) Mick looks out from his executive office window after a big lunch, and sees his Mercedes parked 500m down the street. If the angle of depression to the car is 56°, how far up the building is Mick's office?

10) An airplane is flying at a height of 2 miles above the level ground. The angle of depression from the plane to the foot of a tree is 15°. Find the distance that the air plane must fly to be directly above the tree.

11) A bird sits on top of a lamppost. The angle of depression from the bird to the feet of an observer standing away from the lamppost is 35°. The distance from the bird to the observer is 25 meters. How tall is the lamppost?

Use the information below for questions 12-14.
Lindsey shouts down to Pete from her third-story window.

12) Lindsey is 9.2 meters up, and the angle of depression from Lindsey to Pete is 79°. Find the distance from Pete to the base of the building to the nearest tenth of a meter.



13) To see Lindsey better, Pete walks out into the street so he is 4.3 meters from the base of the building. Find the angle of depression from Lindsey to Pete to the nearest degree.

14) Mr. Shea lives in Lindsey's building. While Pete is still out in the street, Mr. Shea leans out his window to tell Lindsey and Pete to stop all the shouting. The angle of elevation from Pete to Mr. Shea is 72°. Tell whether Mr. Shea lives above or below Lindsey.

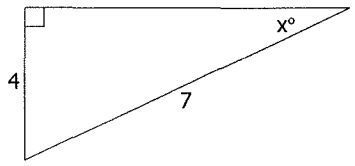
Review Trigonometry

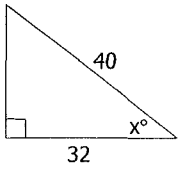
NAME _____

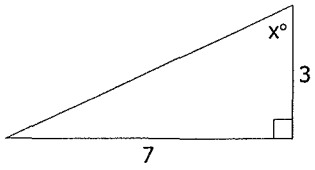
PERIOD _____

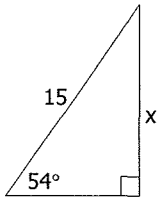
Box equation and answer. Round sides to the nearest ten thousandths and angles to the nearest whole degree.

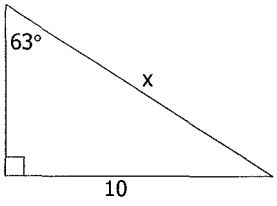
Solve each of the following.

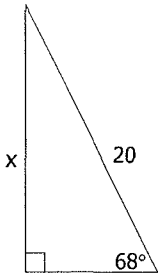
1. 

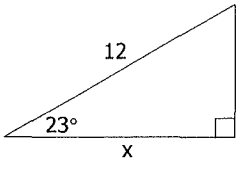
2. 

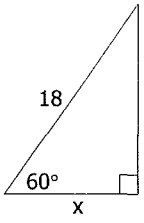
3. 

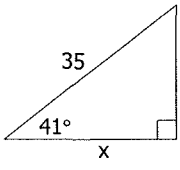
4. 

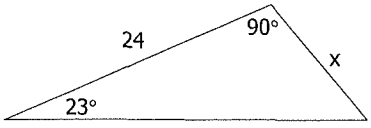
5. 

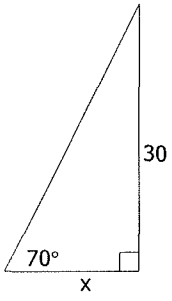
6. 

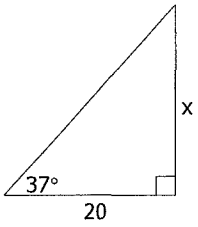
7. 

8. 

9. 

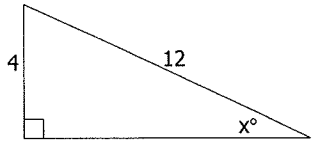
10. 

11. 

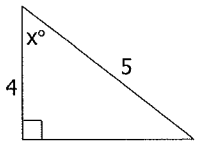
12. 

22

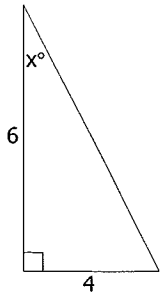
13.



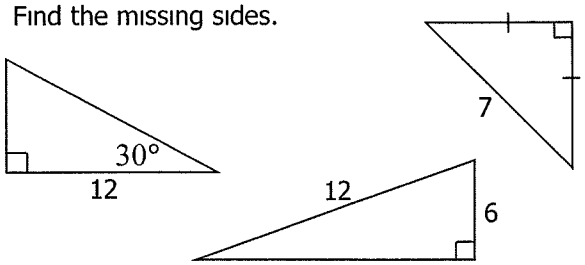
14.



15.



16. Find the missing sides.



17. A ladder is leaning against a wall. The foot of the ladder is 7.5 feet from the wall. The angle of elevation is 73°, how high up the wall does the ladder reach? Round the answer to the nearest hundredth.

18. A boy flying a kite lets out 200 feet of string that makes an angle of 50° with the ground. Find, to the nearest hundredth, how high the kite is above the ground.

19. A guy wire attached to the top of a pole reaches a stake in the ground 16 feet from the foot of the pole and makes an angle of 55° with the ground. Find the length of the wire to the nearest hundredth.

20. The top of a 20-foot ladder touches a point on the wall 18 feet above the ground. Find, to the nearest degree, the measure of the angle that the ladder makes with the wall.

21. The angle of elevation of the top of a building from a point on the ground 600 feet from the base of the building is 35°. Find the height of the building to the nearest hundredth.

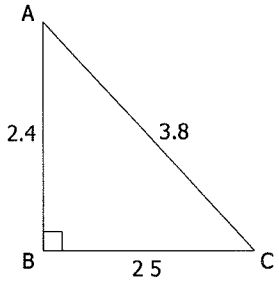
22. A television tower is 160 feet high and an observer is 120 feet from the base of the tower. Find, to the nearest degree, the angle of elevation of the top of the tower from the point of observation.

23. A vertical pole 22 meters tall casts a shadow 16 meters long on level ground. Find, to the nearest degree, the measure of the angle of elevation of the sun.

24. From the top of a cliff 90 feet high, the angle of depression of an object on the ground measures 40°. Find, to the nearest hundredth, the distance from the object to the base of the cliff.

25. From the top of a 140-foot tall lighthouse, the angle of depression of a boat out at sea is 24°. Find, to the nearest hundredth, the distance from the boat to the base of the lighthouse, the base being at sea level.

Use the triangle below to find the trigonometric ratio(fraction) for each problem.



26. tan∠A 26. _____

27. tan∠C 27. _____

28. cos∠C 28. _____

29. sin∠A 29. _____

30. sin∠C 30. _____

31. cos∠A 31. _____

Worksheet Practice Trig 7.5/7.6 day 1

1. $\frac{8}{17}$
2. $\frac{3}{5}$
3. $\frac{15}{8}$
4. $\frac{3}{5}$
5. $\frac{8}{17}$
6. $\frac{4}{3}$
7. .2079
8. .8480
9. 3.4874
10. .8192
11. .1219
12. .9135
13. 1.3764
14. 1.2799
15. .9511
16. .6157
17. .3640
18. .2419
19. 46
20. 76
21. 84
22. 27
23. 83
24. 23
25. 4.7024

Table

26. 48
27. 5.9559
28. 4.8773
29. 18
30. 7.6620
31. 53, 37
32. 62, 28
33. 24.6103
34. 10.8565
35. 29.4390
36. 8.4024
37. 50, 40
38. 66, 24
39. 6.9544
40. 4.3592

Worksheet More Practice Trig 7.5/7.6 day 2

1. 58
2. 9.2762/9.2762
3. 44.5503/44.5503
4. 33
5. 6.9946/6.9946
6. 20.3532/20.3532
7. 39
8. 6.0985/6.0985
9. 34.6410/34.6410
10. 15.4072/15.4072
11. 105.2570, 98.9092/ 105.2570,98.9092
12. 40
13. 49.6933, 12.8616/ 49.6933,12.8616
14. 33, 57

Table/Calculator

15. 17.75, 38.0649/ 17.7500,38.0649
16. 48.7540, 69.6279/ 48.7540,69.6279
17. 196.0581, 341.8169/ 196.0581,341.8169
18. 399.8814, 488.1651/ 399.8814,488.1651

Trig Word Problems Answers.

Trig Day 1

1. 11.8310
2. 23.3154
3. 376.7770
4. 22
5. 77.7817
6. 2.8191
7. 18.7461
8. 64.2788
9. 677.0615
10. 52.4078
11. 8
12. 18.8258
    768.5174

Trig Day 2

1. 7.0139
2. 46.8391
3. 11.7219
4. 164.3150
5. 89.3815
6. 17
7. 101.9693
8. 321.3938
9. 206.0152
10. 86
11. 331.0134
12. 29.6552
13. 73
14. 23
15. 18.0081
16. 43.0963
17. 28.5630
18. 494.2330
19. 42
20. 6.4335
21. 7421.2043

Trig Day 3

1. 25.9936
2. 35
3. 14
4. 30.6418
5. 66
6. 31
7. 66.3522
8. 412.1482
9. 183.6078
10. 11
11. 62.5029
12. 3998.8144
13. 338.5452
14. 3.3261
15. 230.8735

Day 4

1) 74.7238 ft.
2) 23.5817 ft.
3) 1247 ft.
4) 22.8423 ft.
5) 359 ft.
6) 51°
7) 69°
8) 184.6984 ft.
9) 7185 ft.
10) 60°
11) 23 ft.
12) 5888 ft.
13) 2058 ft.
14) 11°
15) 124 ft.
16) 13, 18
17) 50°
18) 117 ft.

Depressing Problems with Uplifting Answers Key

1. 16 5166 miles
2. 901 ft
3. 44 ft
4. 9°
5. 25 ft
6. 5°, 2.36ft/sec
7. 98.4146 ft
8. 44 5041 ft
9. 741.2805 m
10. 7.4641 miles
11. 17.5052 meters
12. 1.7883 meters
13. 65°
14. Mr Shea is above Lindsey, be able to tell how much.

Practice on Trig Ratios Answers

1) $Sin\,A = \frac{1}{2}$
2) $Cos\,G = \frac{7}{25}$
3) $Tan\,M = \frac{12}{5}$
4) $Sin\,S = \frac{4}{5}$
5) $Cos\,D = \frac{7}{25}$
6) $Tan\,W = \frac{1}{1}$
7) $Sin\,J = \frac{1}{3}$
8) $Cos\,V = \frac{\sqrt{2}}{2}$
9) $Tan\,C = \frac{\sqrt{3}}{1}$
10) $Sin\,P = \frac{8}{17}$
11) $Cos\,L = \frac{1}{3}$
12) $Tan\,R = \frac{15}{8}$
13) $Sin\,F = \frac{7}{25}$
14) $Cos\,O = \frac{12}{13}$
15) $Tan\,T = \frac{3}{4}$
16) $Sin\,H = \frac{7}{25}$
17) $Cos\,C = \frac{1}{2}$
18) $Tan\,H = \frac{7}{24}$
19) $Sin\,T = \frac{3}{5}$
20) $Cos\,F = \frac{24}{25}$
21) $Tan\,P = \frac{8}{15}$
22) $Sin\,M = \frac{12}{13}$
23) $Cos\,W = \frac{\sqrt{2}}{2}$
24) $Tan\,L = \frac{2\sqrt{2}}{1}$

Review Key Trig.

1. 35°
2. 37°
3. 67°
4. 12.1353
5. 11.2233
6. 18.5437
7. 11.0461
8. 9
9. 26.4148
10. 10.1874
11. 10.9191
12. 15.0711
13. 19°
14. 37°
15. 34°
16. $4\sqrt{3}, 8\sqrt{3}, 6\sqrt{3}, \frac{7\sqrt{2}}{2}, \frac{7\sqrt{2}}{2}$
17. 24.53 ft
18. 153.21 ft
19. 27.90 ft
20. 26°
21. 420.12 ft
22. 53°
23. 54°
24. 107.26 ft
25. 314.45 ft
26. $\frac{25}{24}$
27. $\frac{25}{24}$
28. $\frac{25}{38}$
29. $\frac{25}{38}$
30. $\frac{12}{19}$
31. $\frac{12}{19}$

Table of Trigonometric Ratios / Values

< degree	sin	cos	tan	< degree	sin	cos	tan
1	0.0175	0 9998	0.0175	46	0.7193	0.6947	1.0355
2	0.0349	0.9994	0.0349	47	0.7314	0.6820	1.0724
3	0.0523	0.9986	0.0524	48	0.7431	0.6691	1.1106
4	0.0698	0 9976	0 0699	49	0 7547	0.6561	1.1504
5	0.0872	0.9962	0 0875	50	0 7660	0.6428	1.1918
6	0.1045	0 9945	0 1051	51	0.7771	0.6293	1.2349
7	0.1219	0.9925	0.1228	52	0.7880	0.6157	1.2799
8	0.1392	0 9903	0 1405	53	0.7986	0.6018	1.3270
9	0.1564	0 9877	0.1584	54	0.8090	0.5878	1.3764
10	0.1736	0 9848	0.1763	55	0 8192	0.5736	1.4281
11	0.1908	0.9816	0 1944	56	0.8290	0.5592	1.4826
12	0.2079	0.9781	0.2126	57	0.8387	0.5446	1.5399
13	0.2250	0 9744	0 2309	58	0.8480	0.5299	1.6003
14	0.2419	0 9703	0 2493	59	0.8572	0.5150	1.6643
15	0.2588	0.9659	0 2679	60	0 8660	0.5000	1.7321
16	0.2756	0 9613	0.2867	61	0 8746	0.4848	1.8040
17	0.2924	0.9563	0.3057	62	0.8829	0.4695	1.8807
18	0.3090	0.9511	0 3249	63	0.8910	0.4540	1.9626
19	0.3256	0.9455	0 3443	64	0.8988	0.4384	2.0503
20	0.3420	0.9397	0.3640	65	0 9063	0.4226	2.1445
21	0.3584	0 9336	0.3839	66	0.9135	0.4067	2.2460
22	0.3746	0.9272	0.4040	67	0.9205	0.3907	2.3559
23	0.3907	0 9205	0.4245	68	0.9272	0.3746	2.4751
24	0.4067	0 9135	0 4452	69	0.9336	0 3584	2.6051
25	0.4226	0.9063	0.4663	70	0.9397	0.3420	2.7475
26	0.4384	0.8988	0.4877	71	0.9455	0.3256	2.9042
27	0.4540	0 8910	0 5095	72	0 9511	0.3090	3.0777
28	0.4695	0.8829	0.5317	73	0.9563	0.2924	3.2709
29	0.4848	0.8746	0.5543	74	0.9613	0.2756	3.4874
30	0.5000	0.8660	0.5774	75	0.9659	0.2588	3.7321
31	0.5150	0.8572	0.6009	76	0.9703	0.2419	4.0108
32	0.5299	0 8480	0 6249	77	0 9744	0.2250	4.3315
33	0.5446	0 8387	0.6494	78	0.9781	0.2079	4.7046
34	0.5592	0 8290	0 6745	79	0.9816	0 1908	5.1446
35	0.5736	0.8192	0 7002	80	0.9848	0.1736	5.6713
36	0.5878	0.8090	0 7265	81	0 9877	0.1564	6.3138
37	0.6018	0.7986	0 7536	82	0 9903	0.1392	7.1154
38	0.6157	0.7880	0.7813	83	0.9925	0.1219	8.1443
39	0.6293	0.7771	0.8098	84	0.9945	0.1045	9.5144
40	0.6428	0.7660	0 8391	85	0.9962	0.0872	11.4301
41	0.6561	0.7547	0.8693	86	0.9976	0.0698	14 3007
42	0.6691	0.7431	0 9004	87	0 9986	0.0523	19.0811
43	0.6820	0.7314	0.9325	88	0 9994	0.0349	28.6363
44	0 6947	0 7193	0.9657	89	0 9998	0.0175	57 2900
45	0.7071	0 7071	1.0000	90	1.0000	0 0000	Not Defined