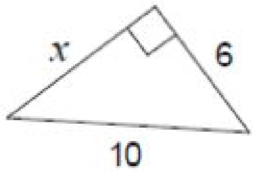
Day 1: Solving Right Triangles

Solve for the missing side by using pythagorean theorem.

1.


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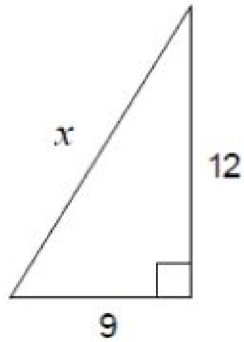

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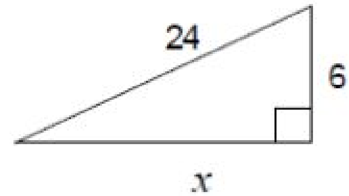

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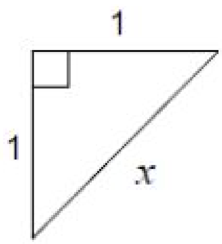

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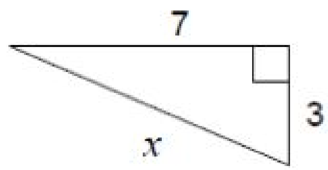

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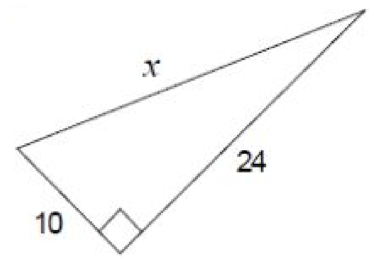
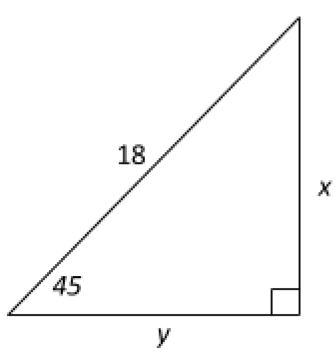


5. Michael is walking around a crater in the center of Heroville. The crater is 5 km long and 7 miles wide.

a. How far would Michael have to walk to walk from one corner of the crater to the opposite corner of the crater **along the outside** of the crater?

b. Captain Pythagoras has the ability to fly. How far would Captain Pythagoras fly if he were to fly from one corner of the crater to the opposite corner of the crater?

Solve for x and y using special right triangles:

1.


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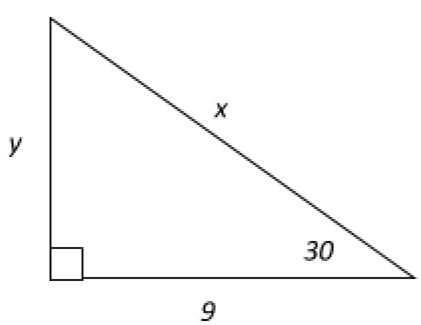

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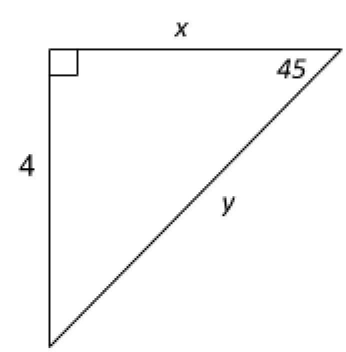
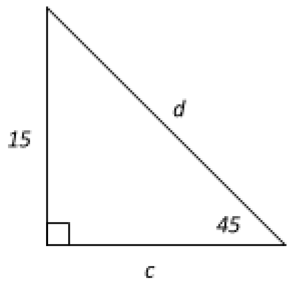


Name: ___________________________

Day 2: Special Right Triangles

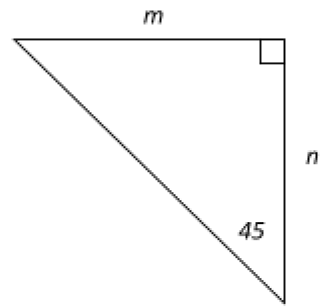
Solve for the missing sides in each of the given triangles using the relationships for special right triangles. If you cannot solve for the sides, write the rule as your answer. *Leave all answers as simplified radicals.*

1.



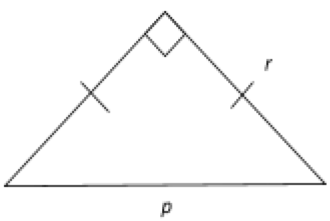
c: ____________ d: ______________

2.



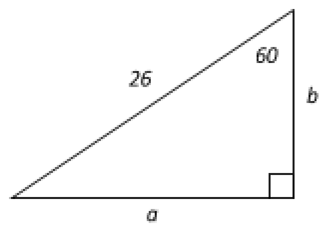
m: __________ n: ______________

3.



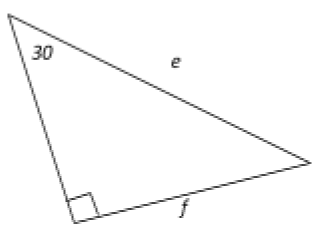
r: _________ p: ___________

4.



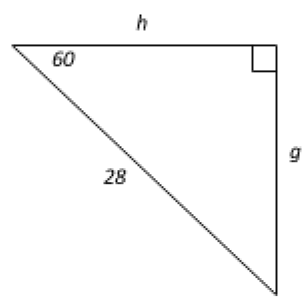
a: ___________ b: _____________

5.



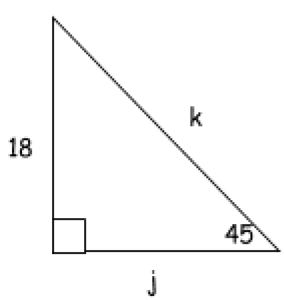
e: ____________ f: ______________

6.



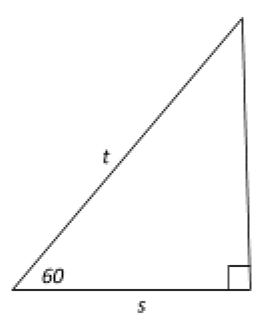
g: ____________ h: ______________

7.



j: ____________ k: ____________

8.



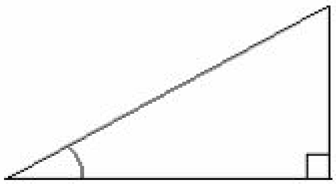
s: ____________ t: ____________

Honors Math 2 | Name: ______________________
Unit 5: Right Triangles

Day 3: Trig Functions

Label each of the sides as opposite leg, adjacent leg, and hypotenuse.

1.



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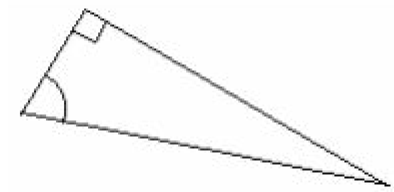

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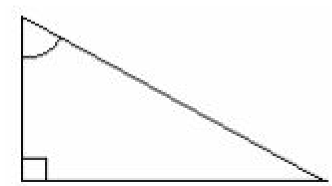

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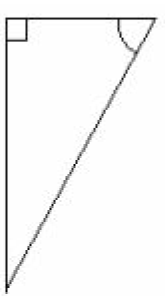

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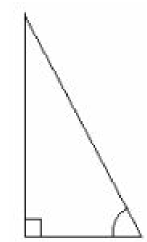

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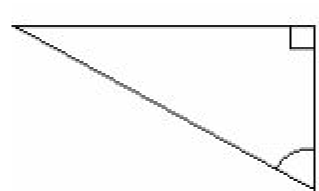
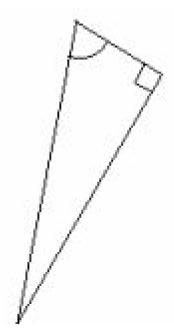


7.



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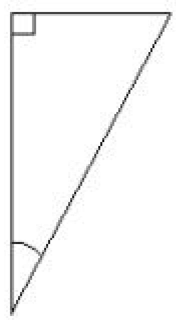

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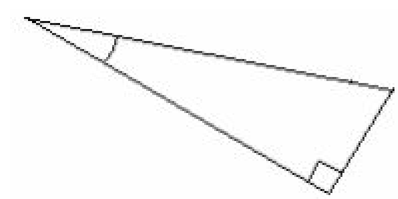
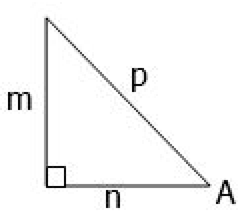


10.

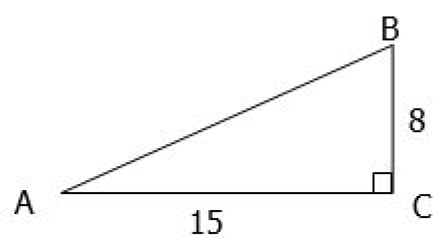


sin A = ________

cos A = ________

tan A = ________

11.



sin B = ______ sin A = ______

cos B = ______ cos A = ______

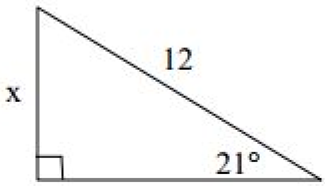
tan B = ______ tan A = ______

Honors Math 2 Name: ___________________________
Unit 5: Right Triangles

Day 4: Solving Using Trig

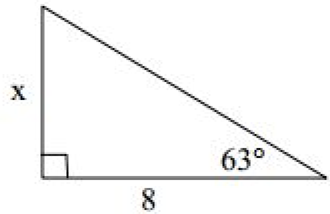
Solve for the missing side or angle.

1



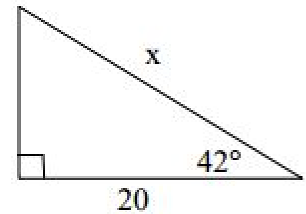
x= ____________

2.



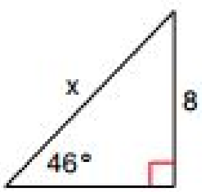
x= ____________

3.



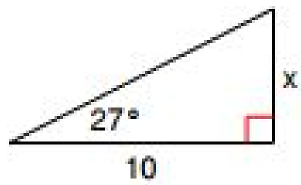
x= ____________

4.



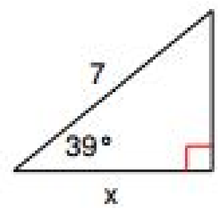
x= ____________

5.



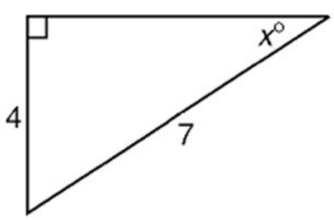
x= ____________

6.



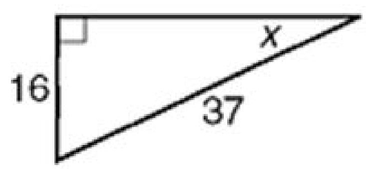
x= ____________

7.



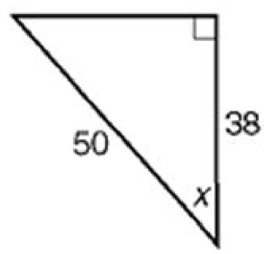
x= ____________

8.



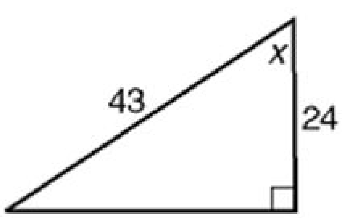
x= ____________

9.



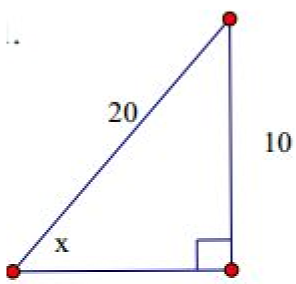
x= ____________

10.



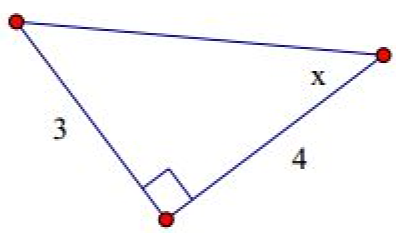
x= ____________

11.



x= ____________

12.



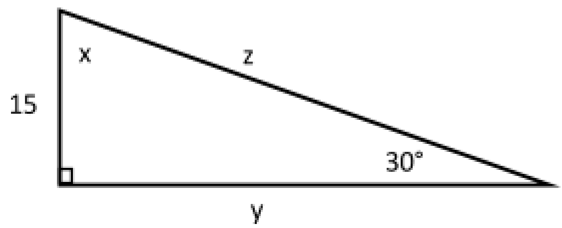
x= ____________

Name: ________________________

Day 5: Solving Right Triangles

Solve for all of the missing sides and angles of the following right triangles.

1.

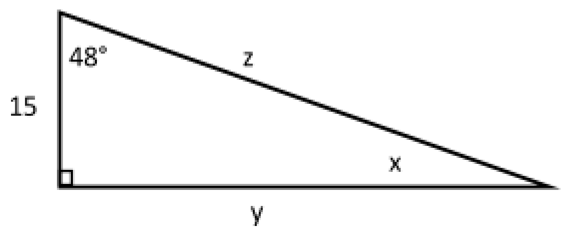


x = __________

y = __________

z = __________

2.

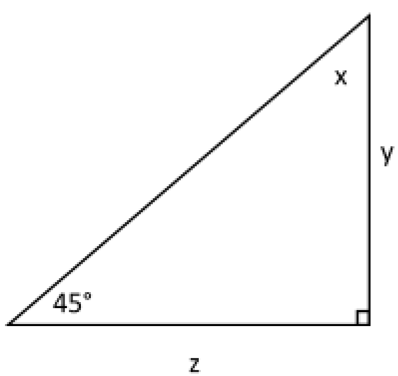


x = __________

y = __________

z = __________

3.

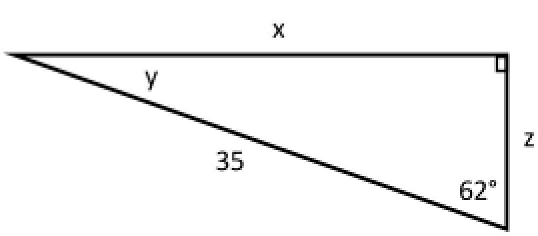


x = __________

y = __________

z = __________

4.

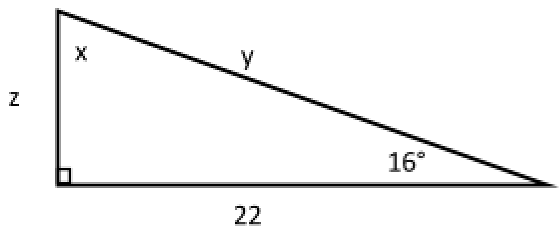


x = __________

y = __________

z = __________

5.

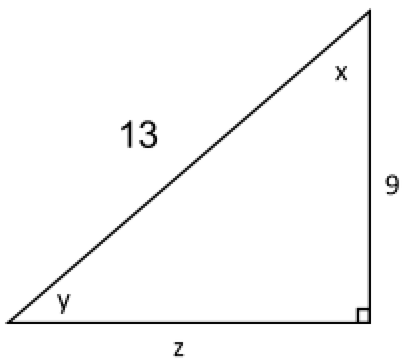


x = __________

y = __________

z = __________

6.



x = __________

y = __________

z = __________

7. Your family wants to purchase a new laptop with a 17" widescreen. Since the 17 inches represents the diagonal measurement of the screen (upper corner to lower corner), you want to find out the actual dimensions of the laptop. When you measured the laptop at the store, the height was 10 inches, but you don't remember the width. Calculate and describe how you could figure out the width of the laptop to the nearest tenth inch.

8. A baseball "diamond" is actually a square with sides of 90 feet. If a runner tries to steal second base, how far must the catcher, at home plate, throw to get the runner "out"? State your answer in decimal form. Given this information, explain why runners more often try to steal second base than third.

Day 6: Mixed Solving Triangles

1. In a 30°- 60°- 90°triangle, the shorter leg is 6ft long. Find the length of the other two legs.

Longer Leg = __________

Hypotenuse = __________

2. The hypotenuse of an isosceles right triangle is 10 inches. Find the length of the isosceles right triangle.

Length of the Side = __________

3. An altitude of an equilateral triangle is $10\sqrt{3}$ units. What is the perimeter of the equilateral triangle?

Perimeter = __________

4. Find the length of the diagonal of a square that has sides of length 30cm.

Side Length = __________

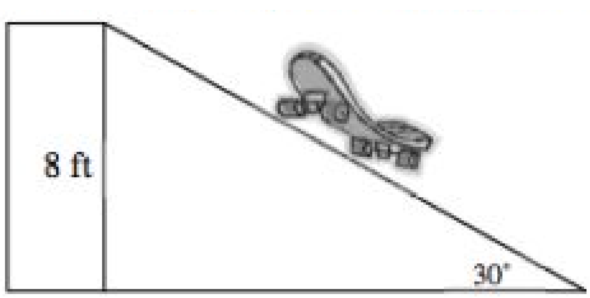
5. The perimeter of a square is 32 feet. Find the length of one of the diagonals.

Length of the diagonal = __________

6. The diagonal of a rectangle splits the rectangle into two $30° - 60° - 90°$ triangles. If the diagonal is 14 inches, find the perimeter of the rectangle.

Perimeter = __________

7. Jeremy is going to show off his skateboarding ability to his Math 2 class. He has a skate board ramp that must be set-up to rise from the ground 30°. If the height from the ground to the platform is 8ft, how far is the ramp from the platform? How long is the ramp up to the top of the platform?



Distance from the platform = __________

Length of the ramp = __________

Day 7: Elevation and Depression

1. A guy wire is attached to the top of a 75 foot tower and meets the ground at a 65^{o} angle. How long is the wire?

2. When the sun's angle of elevation is 57^{o}, a building casts a shadow 21 meters long. How high is the building?

3. A kite is flying at an angle of elevation of about 40^{o}. All 80 meters of string have been let out. Ignoring the sag in the string, find the height of the kite.

4. A man stands at the top of a 105 foot light house and sees a boat. The angle of depression to sight the boat is 37^{o}, find the distance between the base of the light house and the boat.

5. An observer in an airplane at a height of 500 meters sees a car at an angle of depression of 31^{o}. If the plane is over a barn, how far is the car from the barn?

6. From a point 340 meters from the base of the Hoover Dam, the angle of elevation to the top of the dam is 33^{o}. Find the height of the dam to the nearest meter.

Name: ________________________

7. The Pyramid of the Sun in the ancient Mexican city of Teotihuacan was unearthed from 1904 – 1910. From a point on the ground 300 feet from the center of its square base, the angle of elevation to its top would have been 31^{o}. What was the height of the pyramid?

Complete the following statements with always, sometimes, or never. Explain your answer with complete sentences.

8. The tangent of an angle is ____________________ less than 1.

9. The angle of elevation from your eye to the top of a twenty-foot flagpole _______________ gets smaller as you walk towards the flagpole.

10. Given the measure of an acute angle in a right triangle and the length of one of the triangle's legs, you can_______________ use trigonometry to find the length of the hypotenuse.

11. The angle of depression from the top of a building to a car traveling towards the building ______________increases as the car travels closer.

Honors Math 2
Unit 5: Right Triangles

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Day 8: Angle of Elevation and Depression

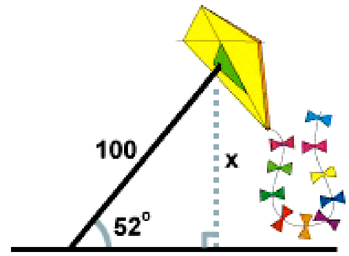
1. Brian's kite is flying above a field at the end of 65 m of string. If the angle of elevation to the kite measures 70°, and Brian is holding the kite 1.2 m off the ground. How high above the ground is the kite flying?

2. From an airplane at an altitude (height) of 1200 m, the angle of depression to a rock on the ground measures 28°. Find the distance from the plane to the rock.

3. From a point on the ground 12 ft from the base of a flagpole, the angle of elevation of the top of the pole measures 53°. How tall is the flagpole?

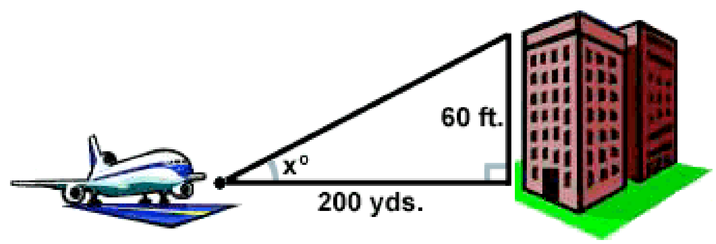
4. From a plane flying due east at 265 m above sea level, the angles of depression of two ships sailing due east measure 35° and 25 °. How far apart are the ships?

5. A man lies a kite with a 100 foot string. The angle of elevation of the string is 52 ^{o} . How high off the ground is the kite?



6. From the top of a vertical cliff 40 m high, the angle of depression of an object that is level with the base of the cliff is 34º. How far is the object from the base of the cliff?

7. An airplane takes off 200 yards in front of a 60 foot building. At what angle of elevation must the plane take off in order to avoid crashing into the building? Assume that the airplane flies in a straight line and the angle of elevation remains constant until the airplane flies over the building.



8. A 14 foot ladder is used to scale a 13 foot wall. At what angle of elevation must the ladder be situated in order to reach the top of the wall?

9. A person stands at the window of a building so that his eyes are 12.6 m above the level ground. An object is on the ground 58.5 m away from the building on a line directly beneath the person. Compute the angle of depression of the person's line of sight to the object on the ground.

10. A ramp is needed to allow vehicles to climb a 2 foot wall. The angle of elevation in order for the vehicles to safely go up must be 30 ^{o} or less, and the longest ramp available is 5 feet long. Can this ramp be used safely?