

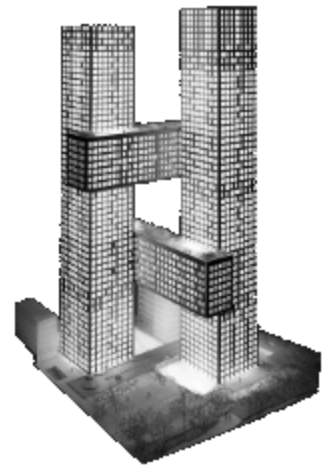
UNIT 05: THREE DIMENSIONAL SHAPES

UNIT 10 LESSON 01: REPRESENT AREA AS UNIT SQUARES

Lesson Objectives: Solve for area using unit squares

Area: Idea: Number:

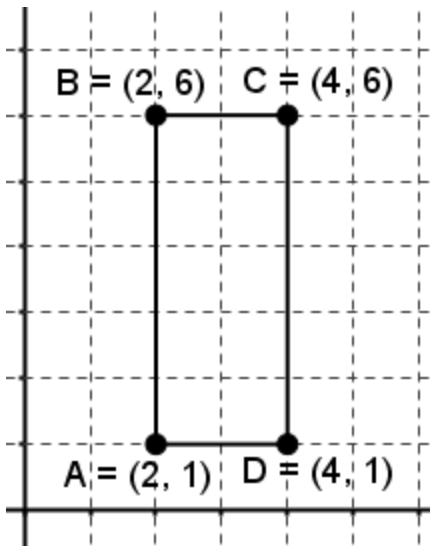
Perimeter: Idea: Number:



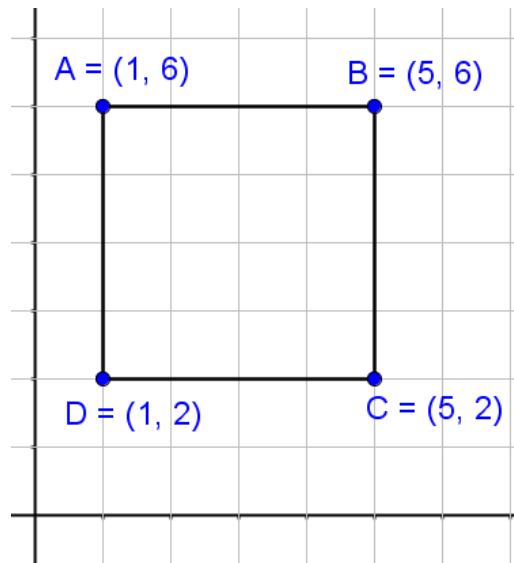
Find the areas and perimeters of the following shapes.

1.

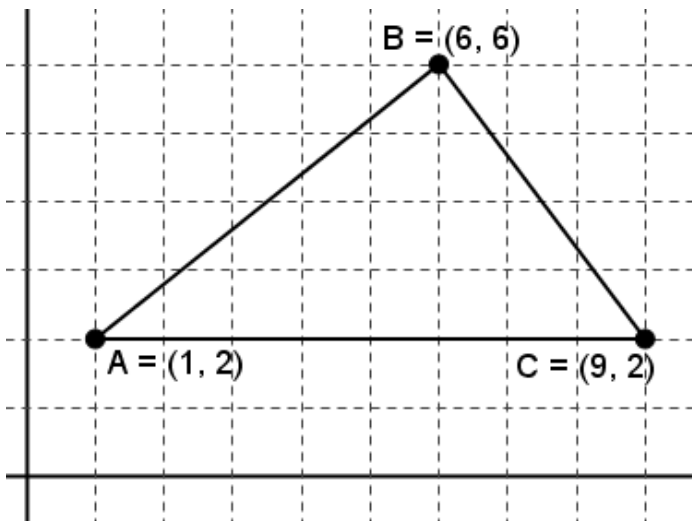
a.



b.

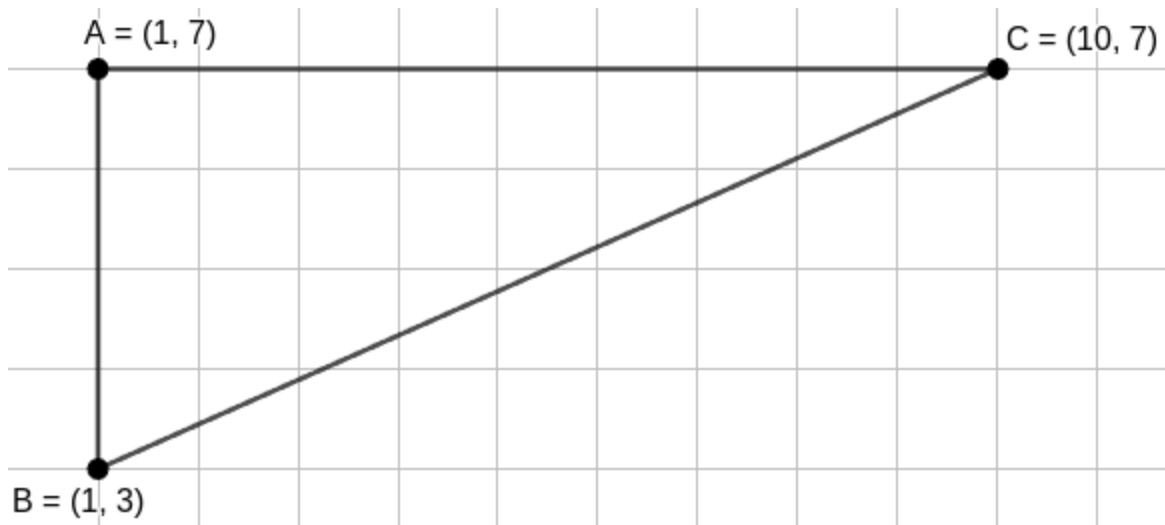


2.

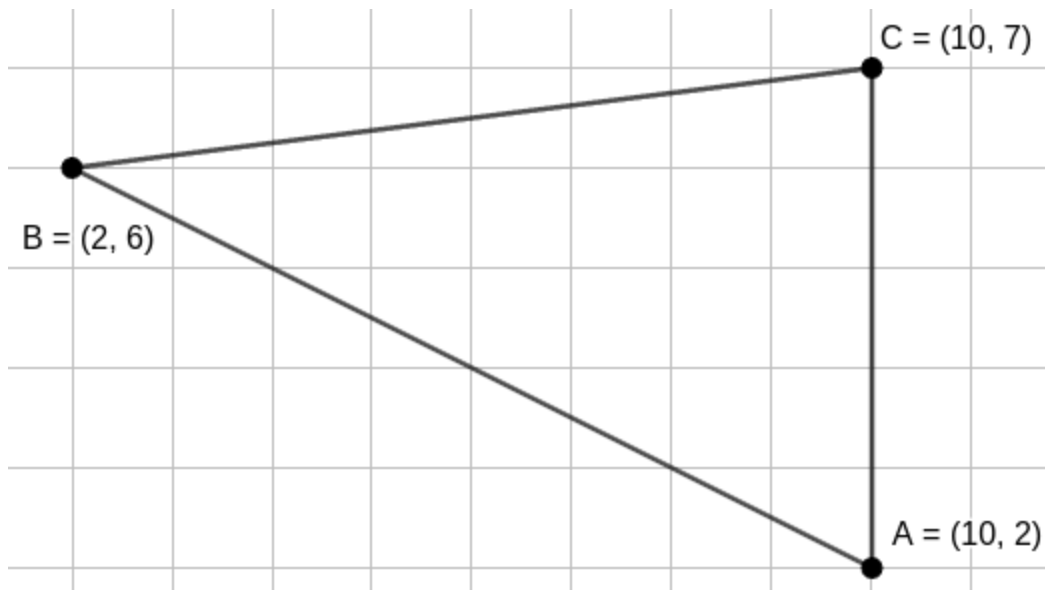


Show work with colors. Assume all coordinates represent centimeters.

3.



4.



UNIT 10 LESSON 02: CALCULATE AREAS OF TRIANGLES

Lesson Objectives

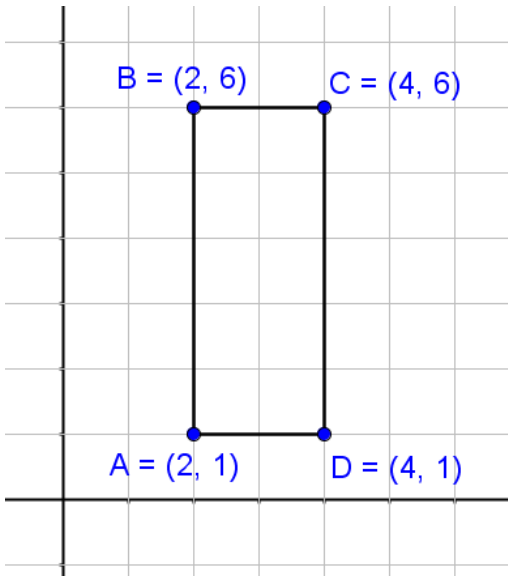
- Solve for area using formulas

Rectangle:

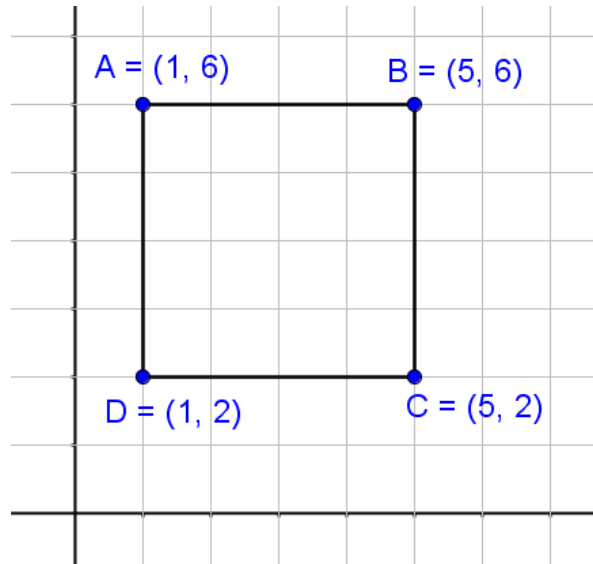
Triangle:

Circle:

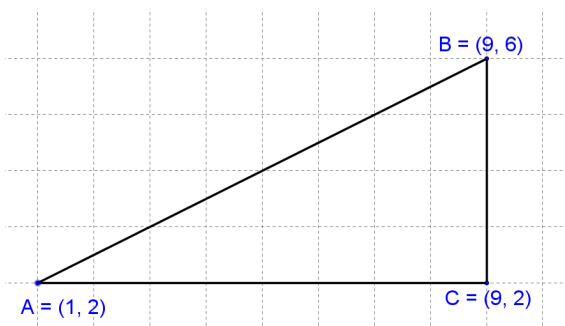
1.



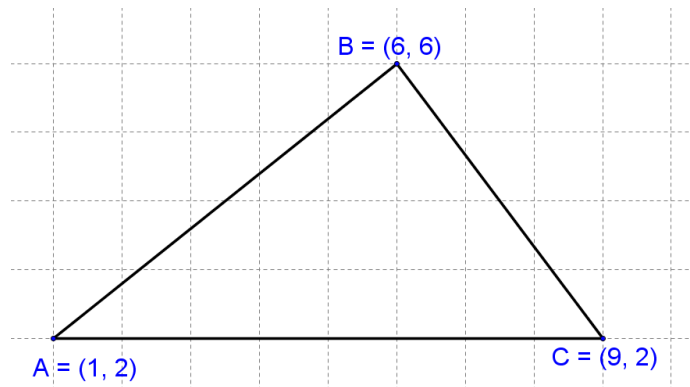
2.



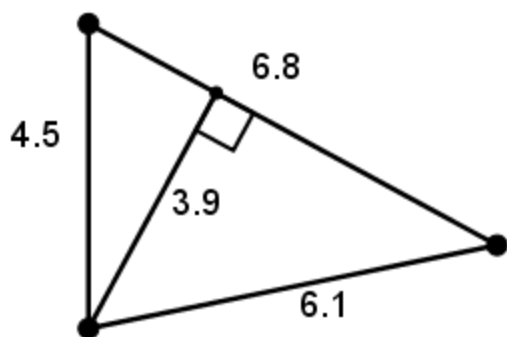
3.



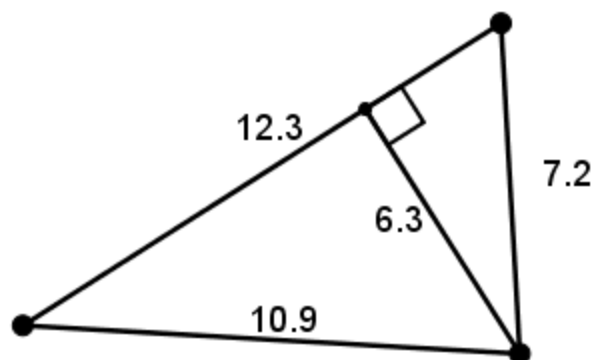
4.



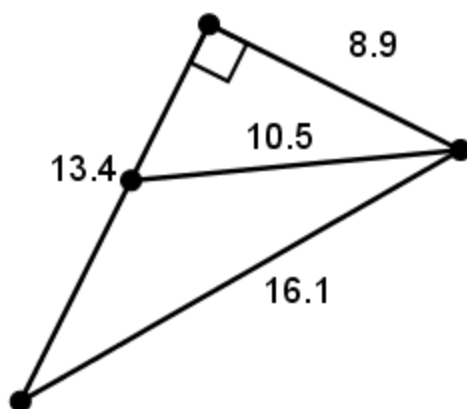
5.



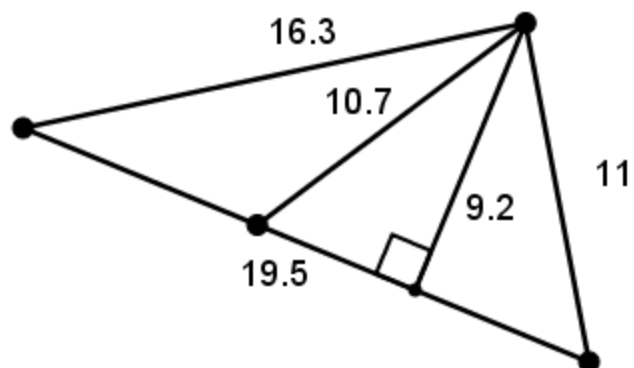
6.



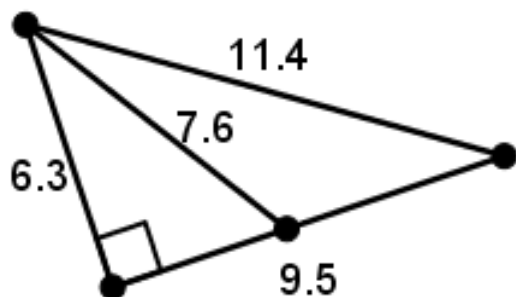
7.



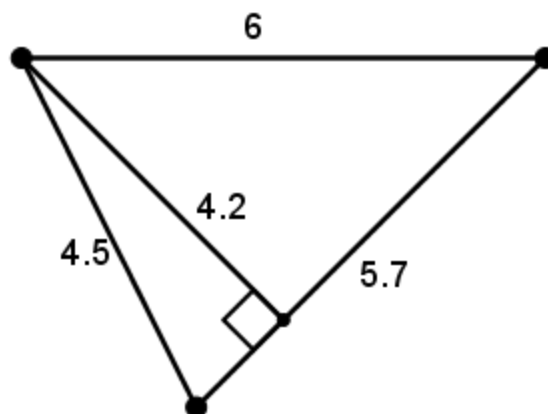
8.



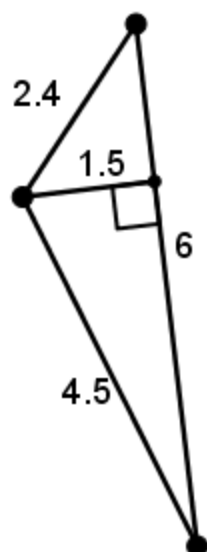
9.



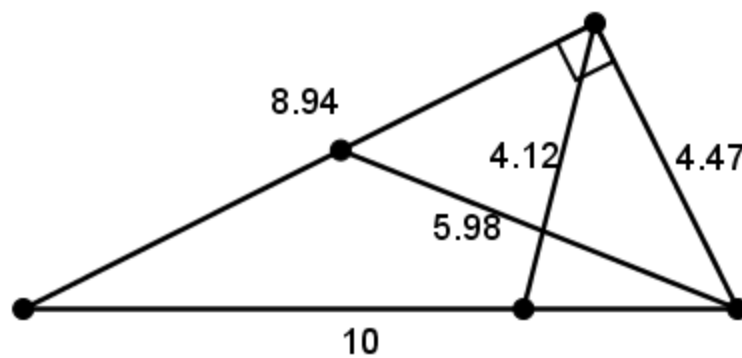
10.



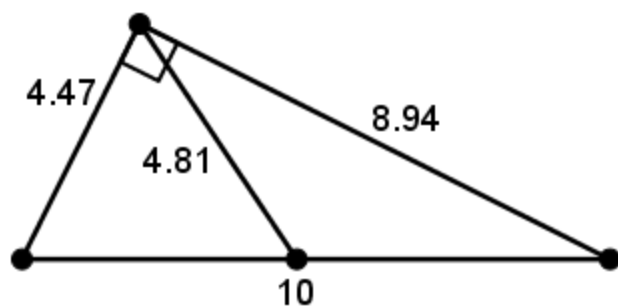
11.



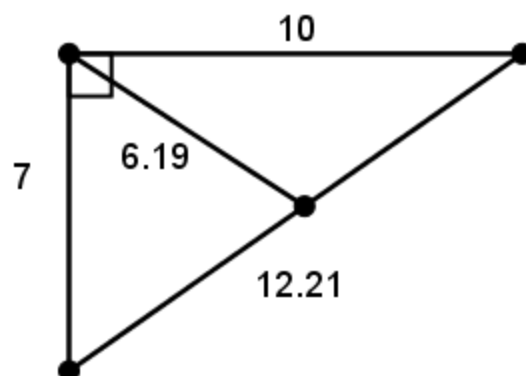
12.



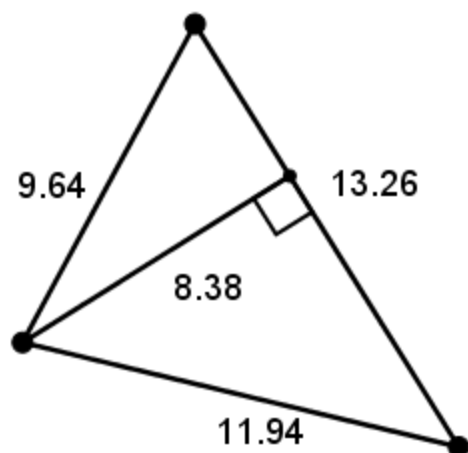
13.



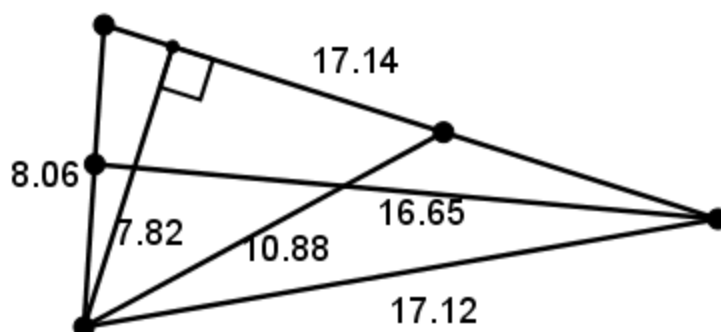
14.



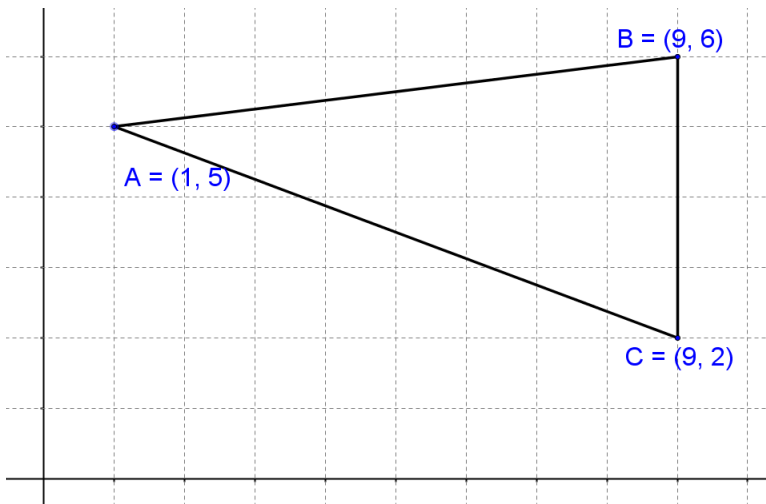
15.



16.



17.



18. Below is the proposed floor plan for a new office. What will the square footage of the office building be?

700 ft

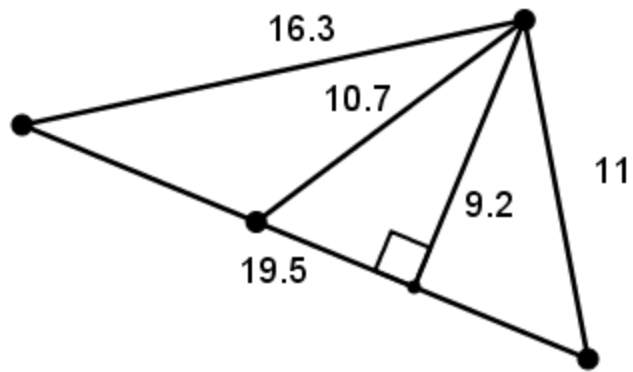
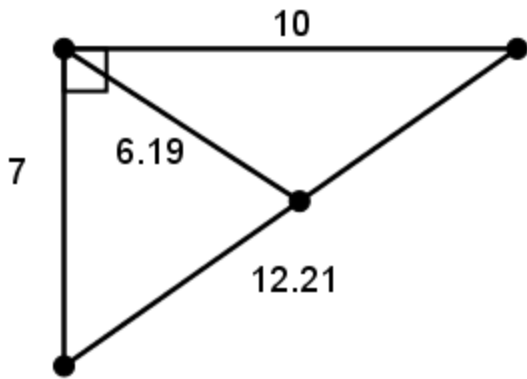


19. Ye Olde High School wants to paint their old brick wall. They just want to paint the outside of the wall so it looks nice to the public. What is the area of the surface that will be painted? Ye Olde High School has provided the following information. You decide what is important.

- There are 8500 bricks in the wall. The wall is 20 feet away from the nearest classroom. The wall is 12 feet tall. The wall is 2 feet thick. The wall is 80 years old. The wall is 70 feet long. The wall is haunted by 4 ghosts.

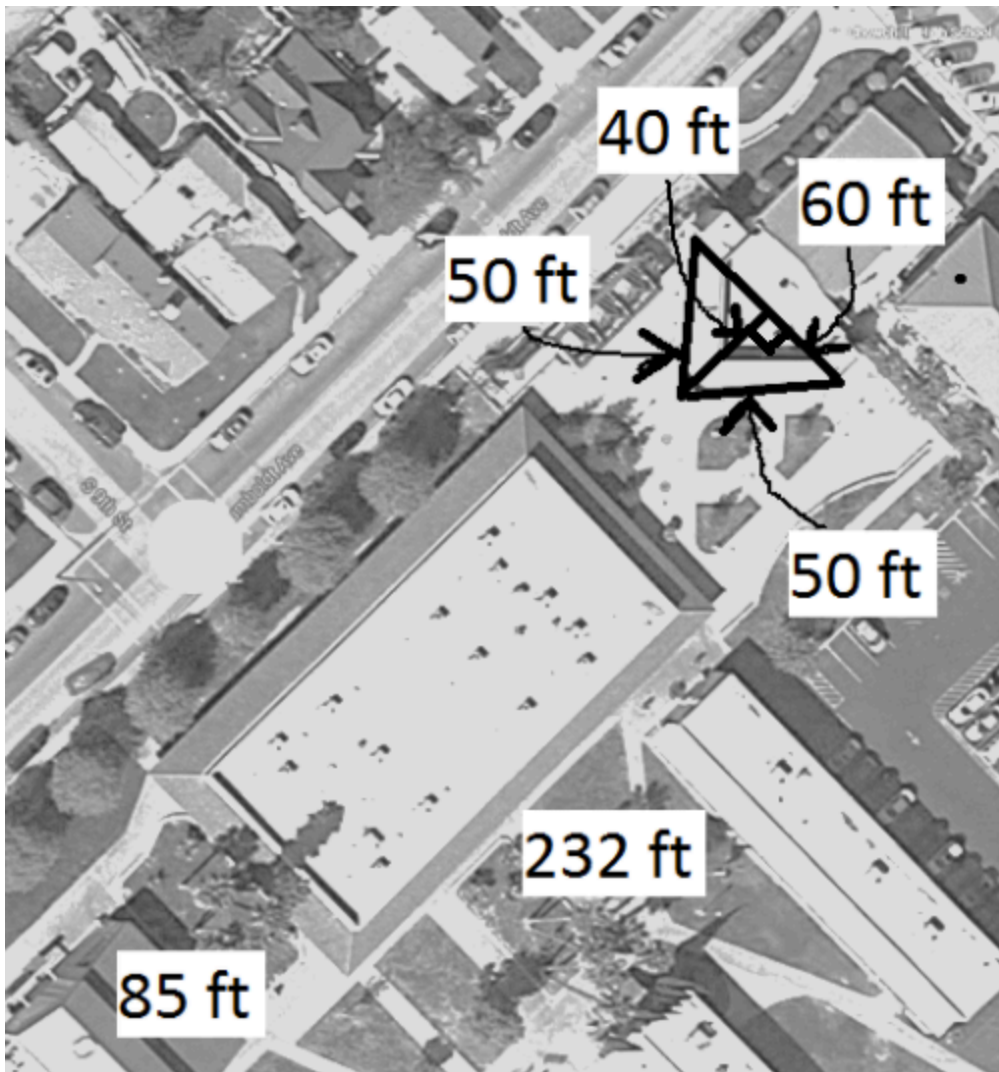


20. Determine the areas of the triangles



21. Below is a overhead of part of Chowchilla High School. Determine

- the area of the library building.
- the area of the triangular front of the office. (Decide which numbers are important)

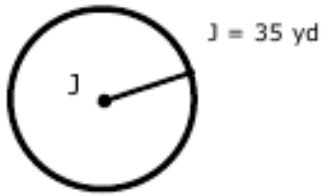


UNIT 10 LESSON 04: DETERMINE AREAS AND CIRCUMFERENCES

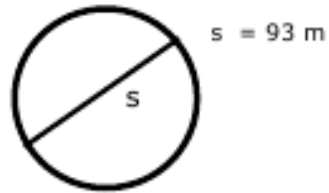
Lesson Objective: Practice calculating areas and circumferences of circles

Directions: Find the circumference for each circle $C =$

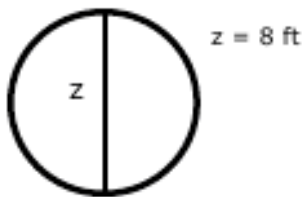
1.



2.



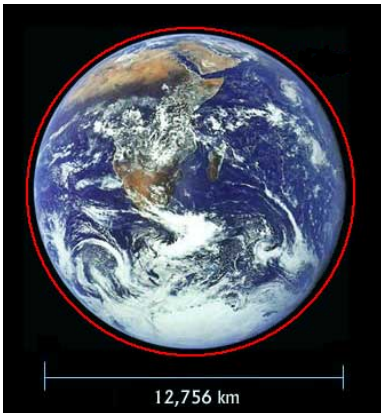
3.



4.



5. Find the distance around the earth

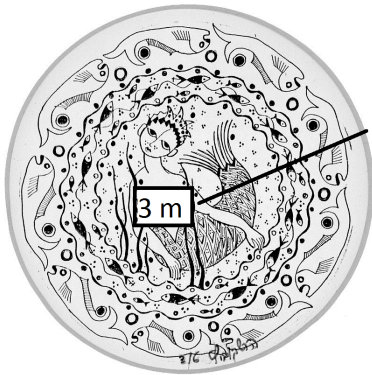


6. If the radius of the ferris wheel is 11 meters, how far does a rider travel in one rotation? How about half of a rotation?

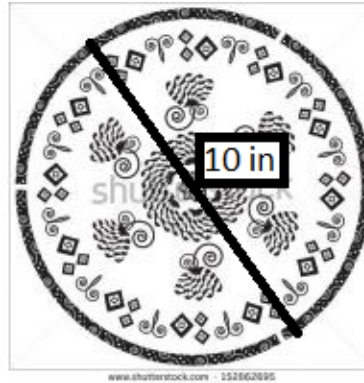


Directions: Find the area for each circle A =

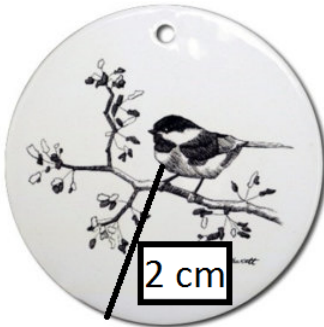
7.



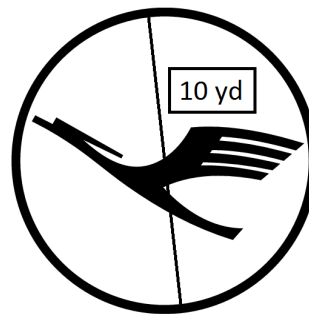
8.



9.



10.



11. A medium pizza from Domino's is 12 inches across.
How much pizza is this? (Hint: find the area. Express your answer as in^2)



12. The rods in the railing have a radius of 2 inches. What is the area of the cross section of the rod? (Remember, cross section is the circular part you see at the ends of the rod.)

Unit 10 Lesson 05: Differentiate Between Area and Circumference Contexts

Lesson Objective: Determine whether questions are asking for circumference or area, and calculate

1. Crater Lake has a diameter of 6 miles.



- a. Draw a line on the picture showing that the diameter is 6 miles
 - b. If you want to walk around Crater Lake, how far will you walk?
-
- c. The average person walks 3 miles per hour. How long does it take the average person to walk around Crater lake?

2. For the glasses below, the lenses have a radius of 0.6 inches.



- a. How much glass is needed to make a lens for these glasses?
- b. How much glass is needed to make both lenses?

3. A Me and Ed's large pizza has a diameter of 14 inches



- Draw the diameter on the picture
- How much pizza is there?
- If the pizza is cut into 12 slices, how much pizza is in each slice?

4. The grass landscaping below has a radius of 60 inches.



- Label this radius on the picture.
- How much grass is used to fill this circle?
- How long is the perimeter of bricks around the circle?
- If each brick is 8 inches long, how many bricks are needed to enclose the grass?

5. Calculate the amount of steel needed to make each of the saws below. The numbers shown are diameters. ($7\frac{1}{4}$ is the same thing as 7.25).



6. A CD has a thin layer of aluminum applied to its surface to make it reflect light.



- If a CD has a diameter of 4.7 inches, how much aluminum must be applied to cover the CD? (Pretend there's no hole in the middle and that the whole circle gets covered in aluminum.)
- [Extra Credit] Obviously the middle part wouldn't actually have any aluminum on it. If the middle part with no aluminum has a diameter of 1 inch, how much aluminum is applied to the CD? (Hint: the answer isn't 10.74665 in^2)

Unit 10 Lesson 06: Design Circles By Area and Circumference

1. An engineer must design a gear for a bicycle.

- a. If the teeth must be separated 5 mm apart and the gear needs 40 teeth, what do we know about the gear?



- b. Using your answer, what must be the **radius** of the gear?

2. In order for this balcony railing to be sufficiently strong, the bars must have a cross section of 12.56 in^2 . What must be the **radius** of the cross section of the rods?

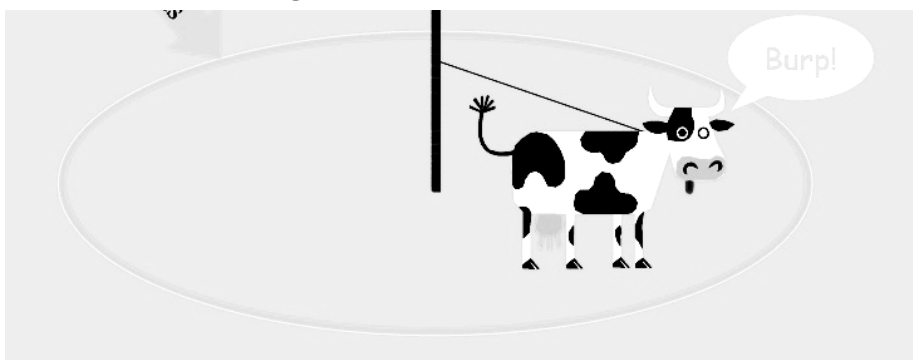


3. To design a pipe for a water system, engineers must determine the area of the cross section (to know how much water can flow through), and the circumference of the pipe (to know how much metal is needed to build it).
- a. If the pipe must have an area of 78.5 ft^2 , how big must the **diameter** of the pipe be?

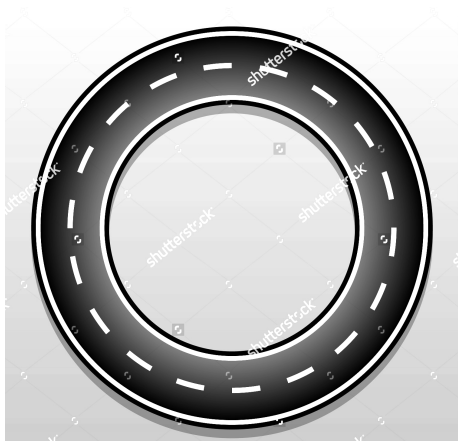


- b. Using your answer, what must be the circumference of the pipe?

4. A cow needs $2,826 \text{ yd}^2$ of grazing land to survive. If the cow will eat everything possible within the circle, how long must its leash be in order to survive?



5. To test new cars, Ferrari needs a circular track 6.28 miles long. What will the **diameter** of this track be?

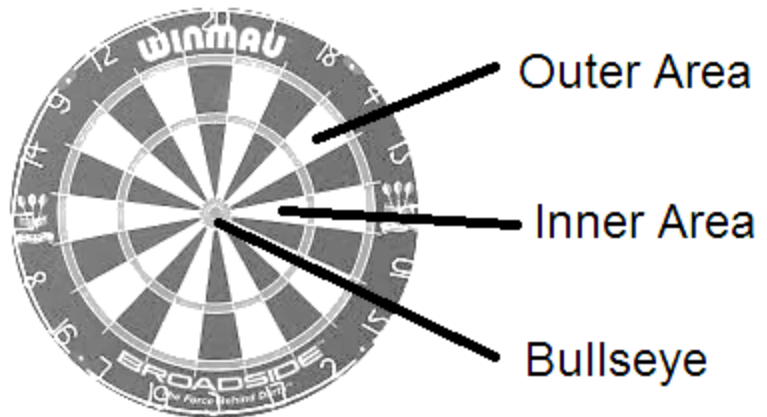


6. In the circular neighborhood below, the project manager wants to have 100,000 ft² inside of the circle to build houses. What must the **diameter** of the neighborhood be?



7. [Extra Credit] A dartboard is divided into 3 main areas: the outer area, the inner area, and the bullseye. The outer area has a radius of 12 inches, the inner area has a radius of 7 inches, and the bullseye has a radius of 1 inch.

- What is the area of the bullseye?
- What is the area of the inner area? Notice, this does **not** include the area of the bullseye.

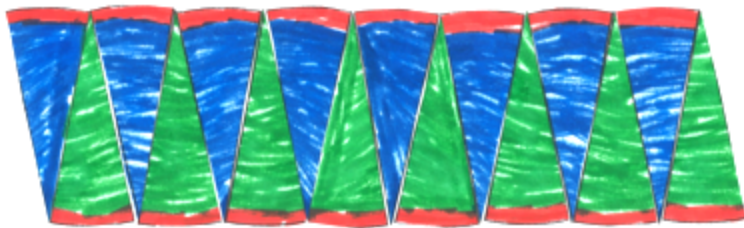
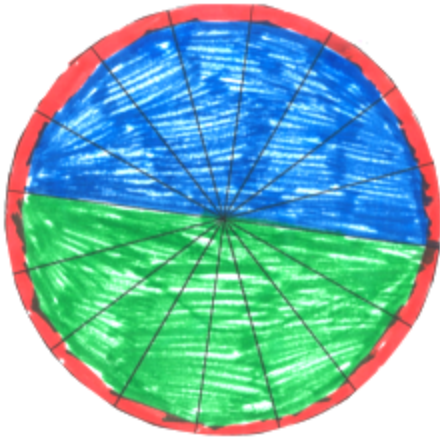


- What is the area of the outer area? Notice, this does **not** include the inner area or the bullseye.
- If a dart hits a random place on the board, what are the odds it will hit the bullseye?

UNIT 10 LESSON 07: PROVE THE AREA OF A CIRCLE FORMULA, $A = \pi r^2$

Lesson Objectives

- Construct an informal proof showing why the area of a circle is probably $A = \pi r^2$

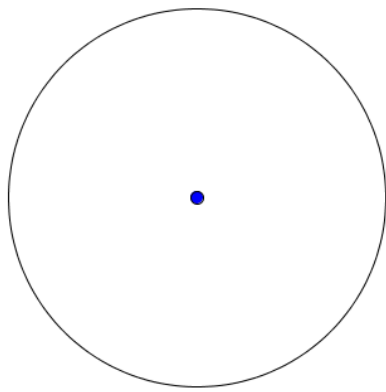


UNIT 10 LESSON 08: DETERMINE MEASURES OF CENTRAL ANGLES

Lesson Objective:

- Memorize how many degrees in a circle and a half circle.
- Given some information, determine missing central angles.

How many degrees in a circle? How many degrees in half of a circle?

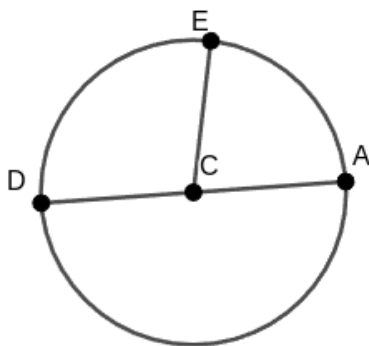


Full Circle

Half Circle

Unless told otherwise, assume all lines that appear to be diameters are actually diameters

1.

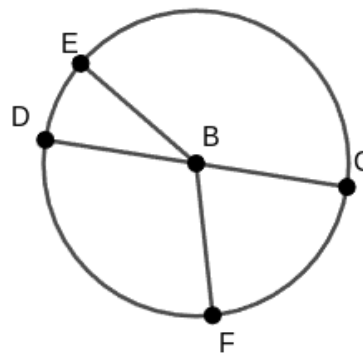


If $m\angle DCE = 100^\circ$

$m\angle ACE =$

$m\angle DCA =$

2.



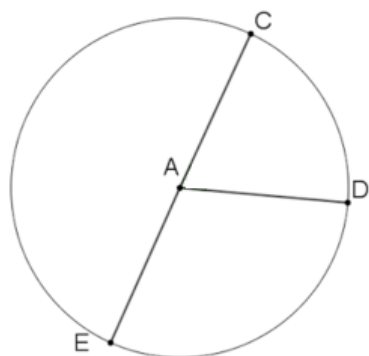
If $m\angle EBD = 32^\circ$ and
 $m\angle CBF = 75^\circ$

$m\angle EBC =$

$m\angle DBF =$

$m\angle EBF =$

3.

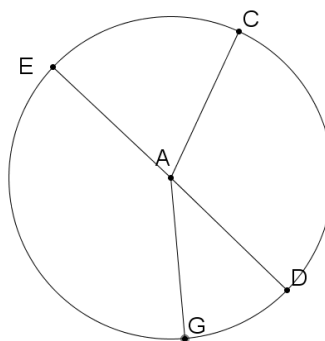


If $m\angle CAD = 70^\circ$

$m\angle EAD =$

$m\angle EAC =$

4.



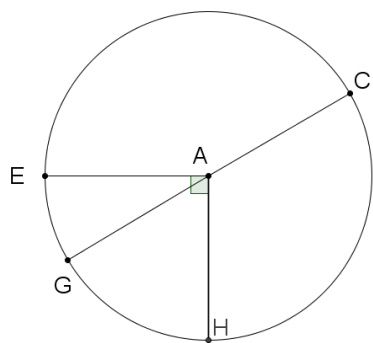
If $m\angle EAC = 60^\circ$ and
 $m\angle EAG = 150^\circ$

$m\angle CAD =$

$m\angle GAD =$

$m\angle CAG =$

5.



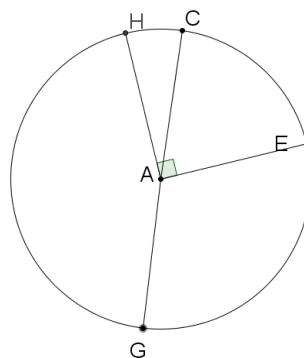
If $m\angle GAH = 65^\circ$

$m\angle GAE =$

$m\angle HAC =$

$m\angle EAC =$

6.



If $m\angle GAE =$
 110°

$m\angle GAH =$

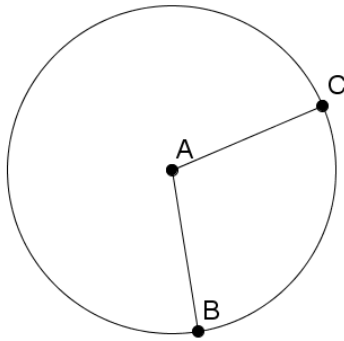
$m\angle HAC =$

$m\angle EAC =$

UNIT 10 LESSON 09: DETERMINE MEASURES OF ARCS

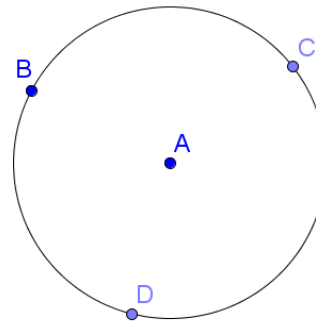
Lesson Objective:

- Given some information, determine missing arcs and central angles.



If $m\angle BAC = 100^\circ$

$m\widehat{BC} =$



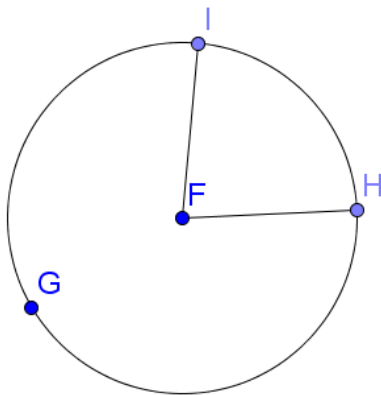
If $m\widehat{BC} = 115^\circ$ and
 $m\widehat{BD} = 105^\circ$

$m\widehat{CD} =$

$m\widehat{CBD} =$

$m\widehat{DCB} =$

$m\widehat{BDC} =$



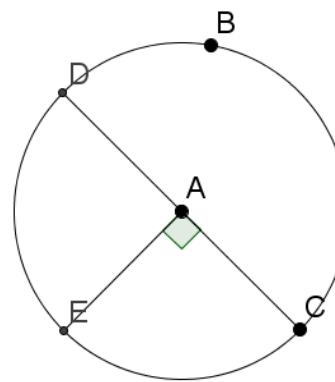
If $m\widehat{IH} = 85^\circ$ and
 $m\widehat{HIG} = 200^\circ$

$m\angle HFI =$

$m\widehat{IG} =$

$m\widehat{GH} =$

$m\widehat{IGH} =$



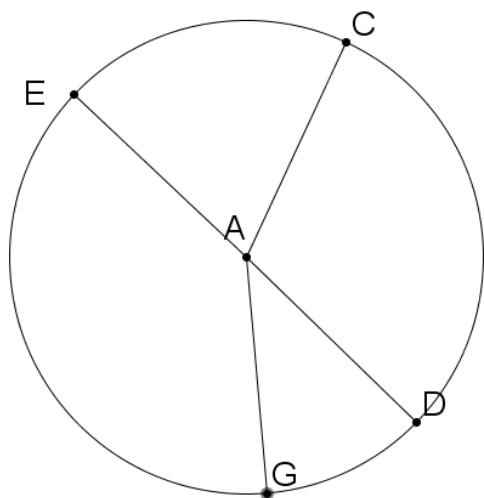
If $m\widehat{DB} = 45^\circ$

$m\widehat{BC} =$

$m\widehat{EC} =$

$m\angle EAC =$

$m\widehat{ED} =$



If $m\widehat{GD} = 35^\circ$ and $m\widehat{EC} = 65^\circ$

$m\widehat{EG} =$

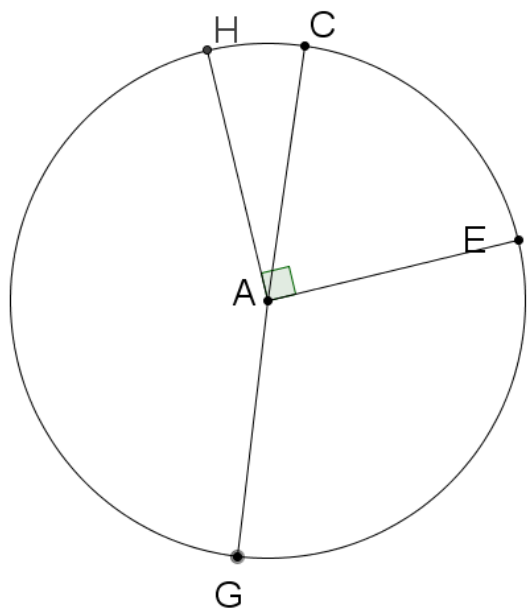
$m\widehat{CD} =$

$m\angle GAD =$

$m\angle GAE =$

$m\angle EAC =$

$m\angle CAD =$



If $m\widehat{GE} = 115^\circ$

$m\widehat{HG} =$

$m\widehat{EC} =$

$m\widehat{CH} =$

$m\angle GAE =$

$m\angle GAH =$

$m\angle HAC =$

$m\angle EAC =$

UNIT 10 LESSON 10: REPRESENT VOLUME AS UNIT CUBES

Lesson Objectives

- Determine volumes by counting cubes

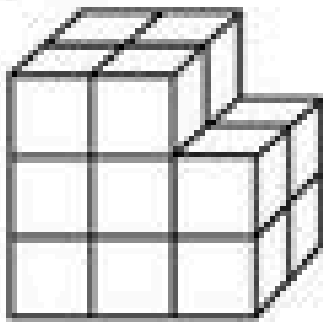
Volume:

Idea:

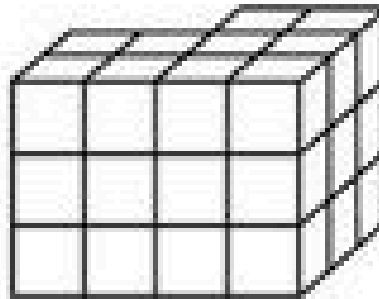
Number:

The following shapes are going to be made out of the concrete. Determine the amount of concrete needed to build the shapes. Assume all lengths are measured in yards.

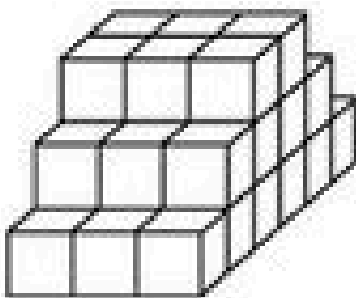
1. This part of a staircase



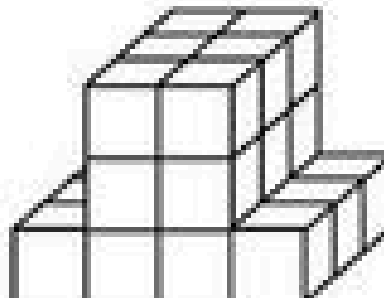
2. This corner of a room



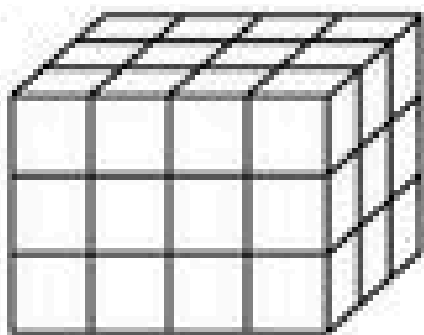
3.



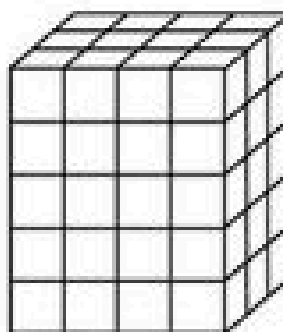
4.



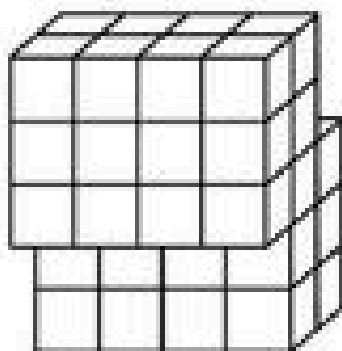
5.



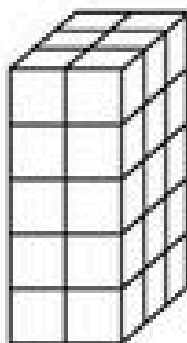
6.



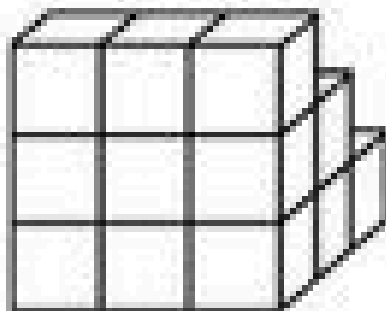
7.



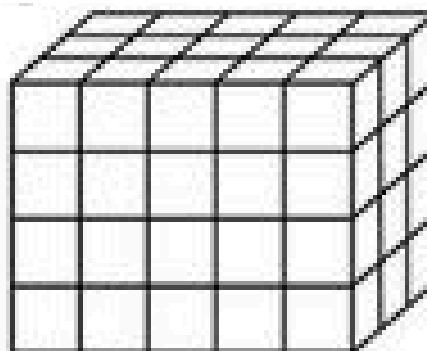
8.



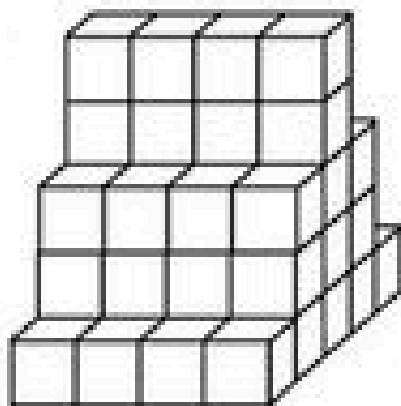
9.



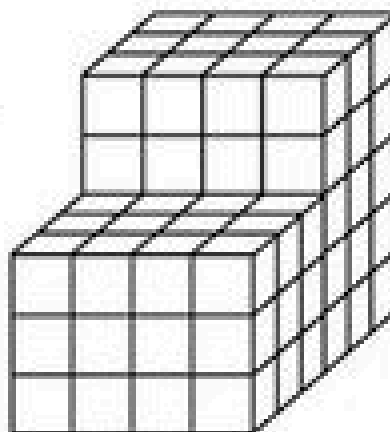
10.



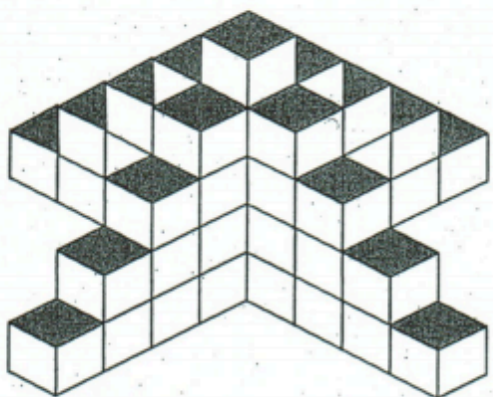
11.



12.



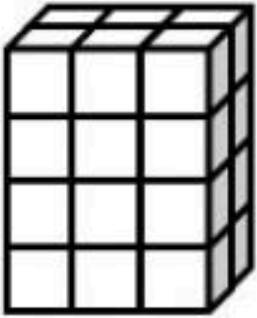
Extra Credit. (this picture looks weird, but it's the same on all 4 sides.)



UNIT 10 LESSON 11: CALCULATE VOLUMES OF RECTANGULAR PRISMS

Lesson Objectives

- Determine volumes of rectangular prisms using a formula



-
- Draw your rectangular prism in the space provided. Label the length, width, and height. Measure with cm.
 - Calculate the volume of the rectangular prism.

1.

Object Number:	
This is a sketch of your prism	

2.

Object Number:	
This is a sketch of your prism	

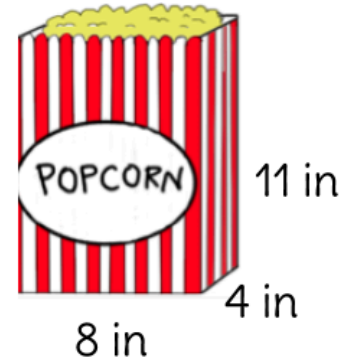
3.

Object Number:	
This is a sketch of your prism	

4. A movie company hired you to calculate their profits for selling a large tub of popcorn. They tell you that a piece of popcorn costs \$0.01, a piece of popcorn has a volume of 0.8in^3 , and they intend to sell the tub for \$5.

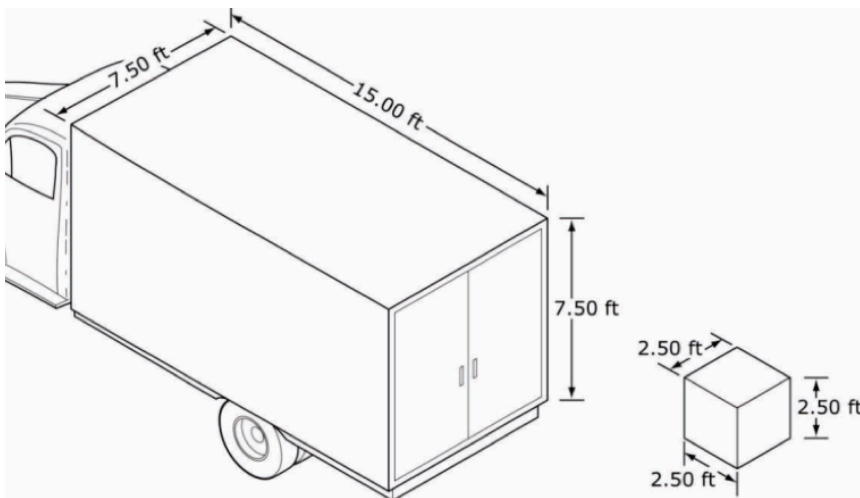
a. First, how many cubic inches of popcorn fit in the tub?

b. Then, how many pieces of popcorn fit in the tub?



c. Finally, how much profit would the company make by selling a tub of popcorn?

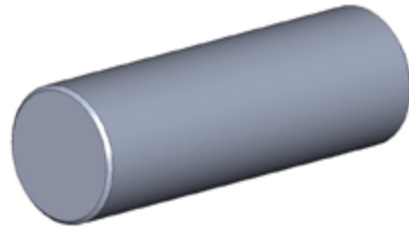
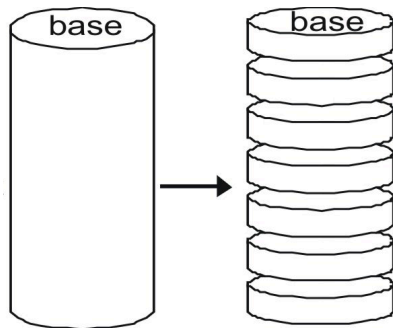
5. A trucking company hired you to help them plan their shipments. How many boxes would fit in the truck? (This is a multi-step problem)



UNIT 10 LESSON 12: CALCULATE VOLUMES OF CYLINDERS

Lesson Objectives

- Determine volumes of cylinders using a formula



-
- Draw your cylinder in the space provided. Label the height and diameter (or radius). Measure with cm.
 - Calculate the volume of the cylinder.

1.

Object Number:	
This is a sketch of your cylinder	

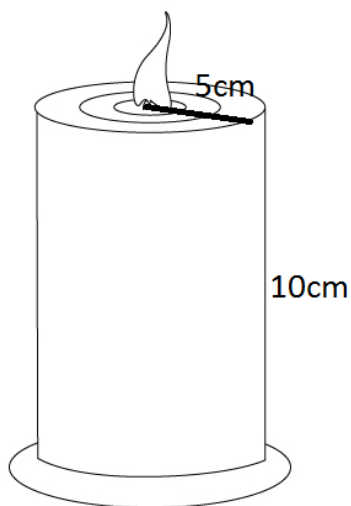
2.

Object Number:	
This is a sketch of your cylinder	

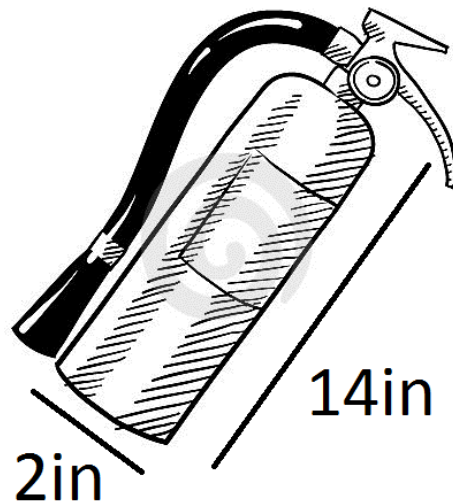
3.

Object Number:	
This is a sketch of your cylinder	

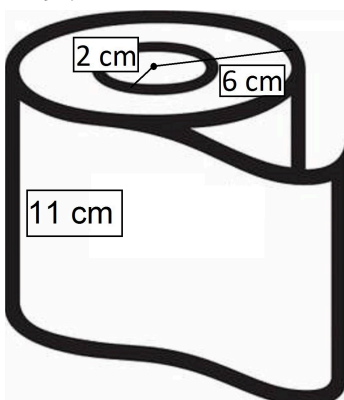
4. What volume of wax is needed to make this candle?



5. How much sodium bicarbonate is in the fire extinguisher?



Extra Credit: How much toilet paper is in a Trader Joe's roll of toilet paper? Remember, the middle of a roll is empty! (hint: the answer is **NOT** between 500 cm^2 and 600 cm^2)



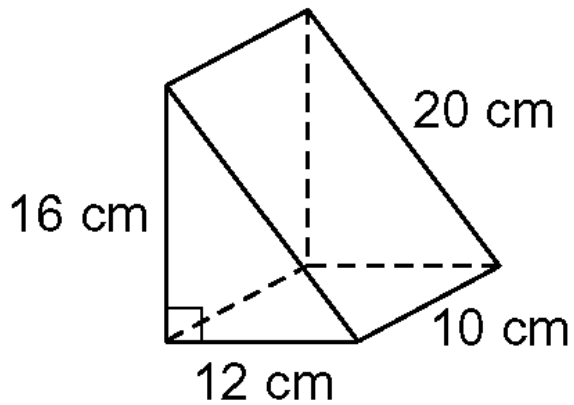
UNIT 10 LESSON 13: CALCULATE VOLUMES OF TRIANGULAR PRISMS

Lesson Objectives

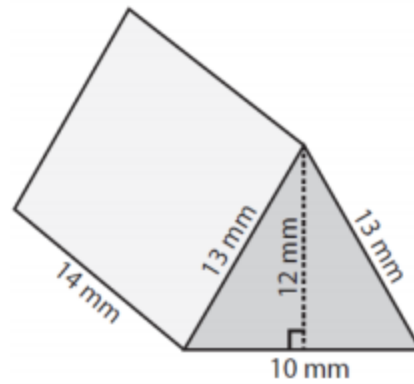
- Determine volumes of cylinders using a formula

Determine the volumes of the following shapes

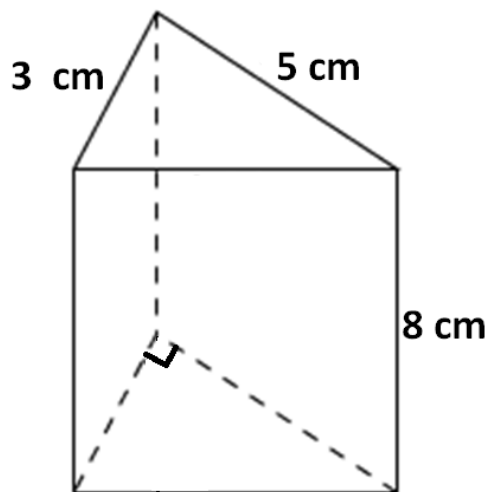
1.



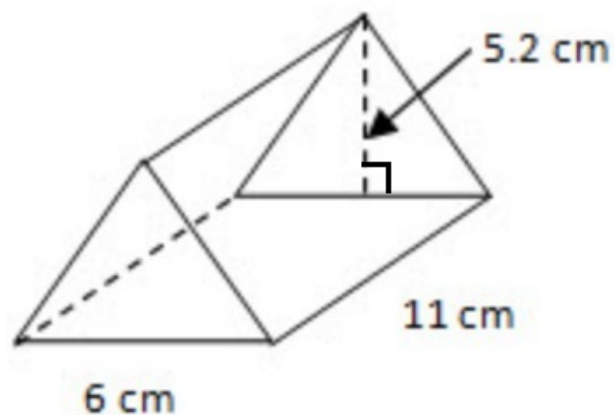
2.



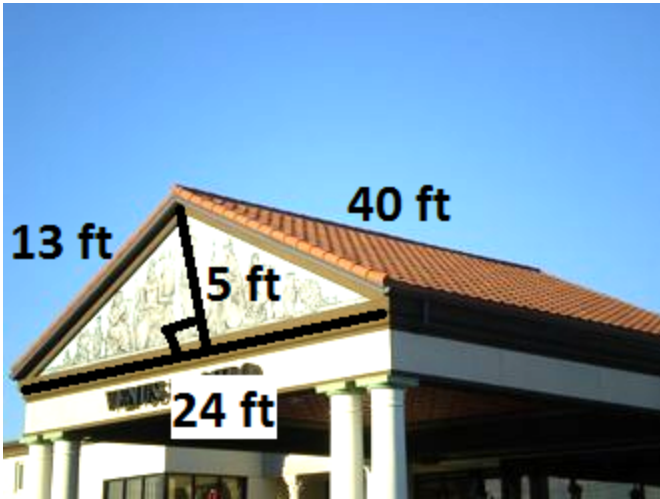
3.



4.



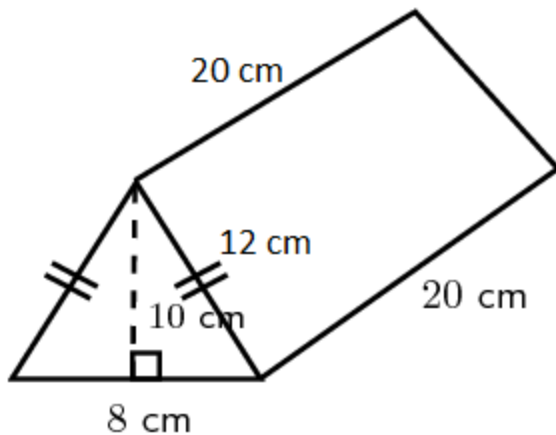
4. An architect wants to estimate the volume of the attic of this building. What would it be?



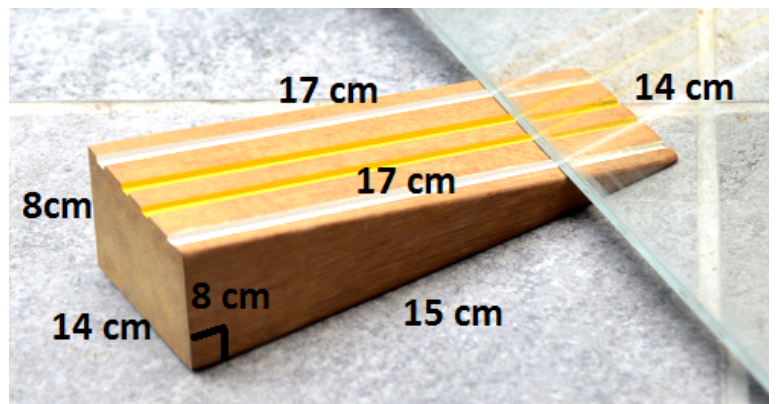
5. Find the volume of chocolate that could fit in the Toblerone package.



6. Find the volume of this miniature camping tent.



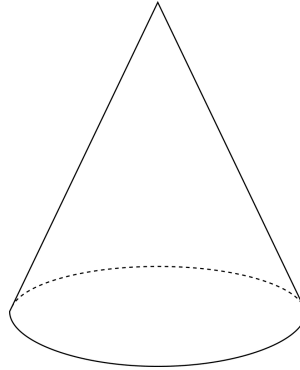
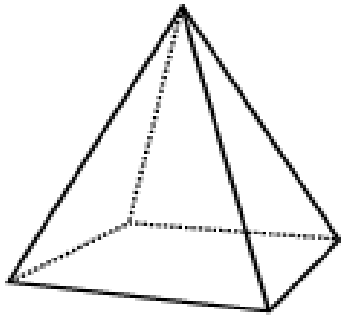
7. Find the volume of wood needed to make this doorstop.



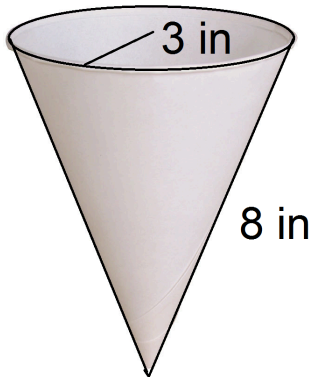
UNIT 10 LESSON 14: CALCULATE VOLUMES OF PYRAMIDS AND CONES

Lesson Objectives

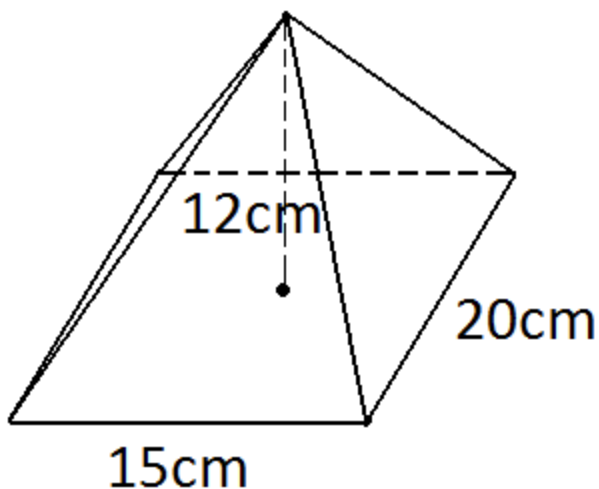
- Determine the volumes of pyramids and cones



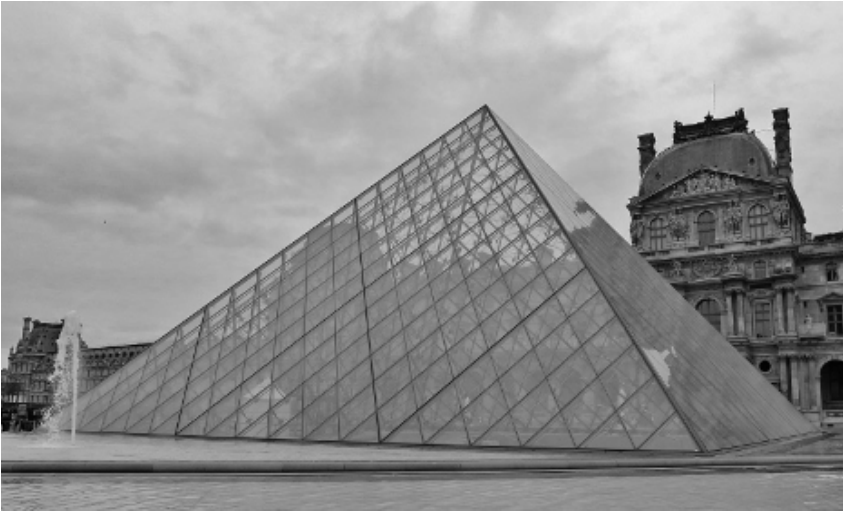
- What is the volume of flavored ice that can fit in this snow cone cup?



- What is the volume of the shape below?



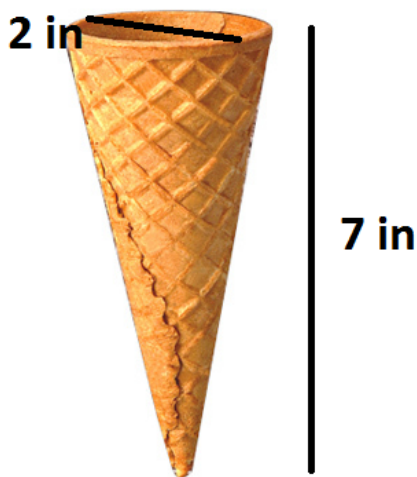
3. The most famous museum in the world, the Louvre, has a giant glass pyramid in front. It has a height of 22 meters. The bottom of the pyramid is a square with 35 meter sides. What is the volume of the pyramid?



4. There are also 3 baby pyramids nearby. These pyramids have side lengths of 10 meters, and a height of 8 meters. What is the volume of a baby pyramid?

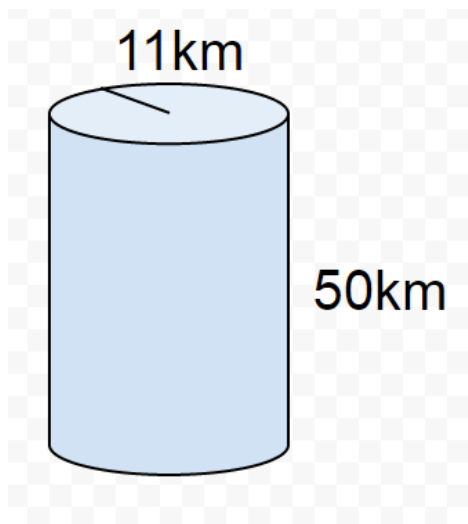


5. How many of these cones could you **completely fill** if you had a gallon of ice cream? (There are 231 cubic inches in a gallon.)

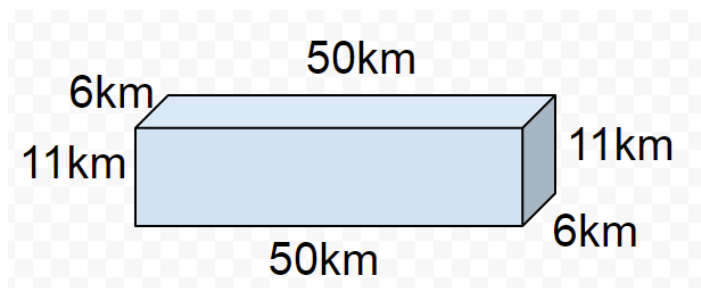


6. Find the volume of the following shapes

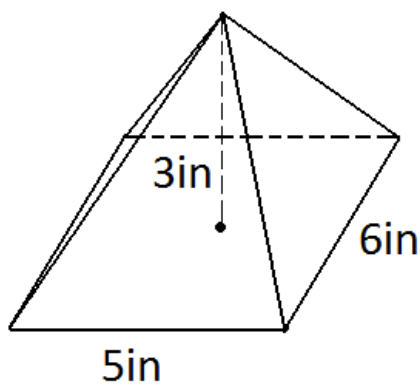
A)



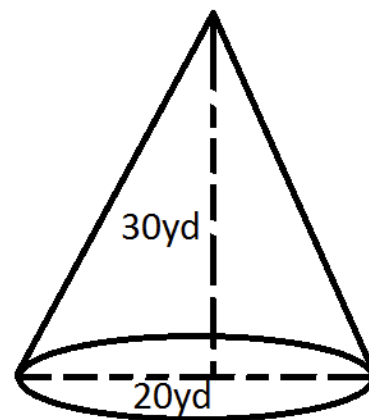
B)



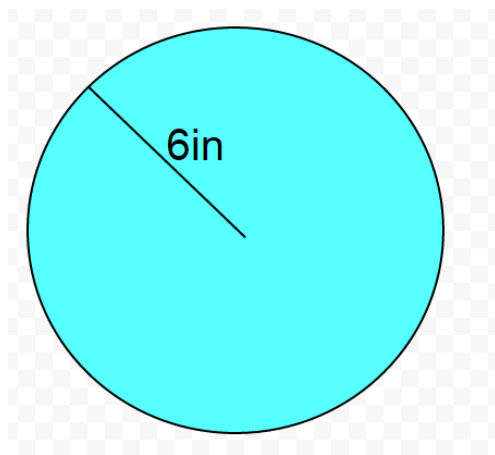
C)



D)



7. If someone asks you to find the volume of this circle, what should you tell them?



UNIT 10 LESSON 15: CALCULATE VOLUMES OF SPHERES

Lesson Objectives

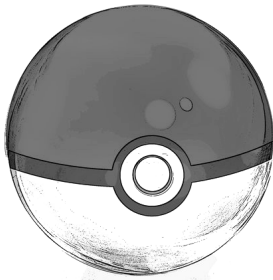
- Determine the volumes of spheres and triangular prisms

Sphere:

- How much air is inside of this soccer ball?



2. If this pokeball has a diameter of 6 inches, how much room does Pikachu have inside?



3. If a pool ball has a diameter of 2.25 inches, how much phenolic resin is needed to manufacture a whole set?



4. Water will naturally form into a perfect sphere if no forces act upon it. Assume the average raindrop is roughly a sphere with a radius of 1 mm.



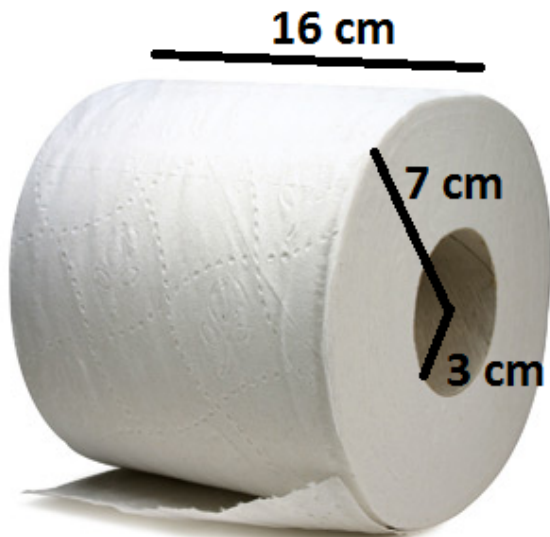
- How much water is in the average raindrop?
- You want to drink some rain water. You figure 2,000 drops ought to be enough. If 2,000 drops fall in your bucket, how many liters of water will you have? (There are $1,000,000 \text{ mm}^3$ in one liter)
- 2,000 drops was disappointing. Instead you leave the bucket out for the entire duration of the storm. If 500,000 drops fall in your bucket during the storm, how many liters of water will you have? (There are $1,000,000 \text{ mm}^3$ in one liter)

UNIT 10 LESSON 16: MEMORIZE AREA AND VOLUME EQUATIONS

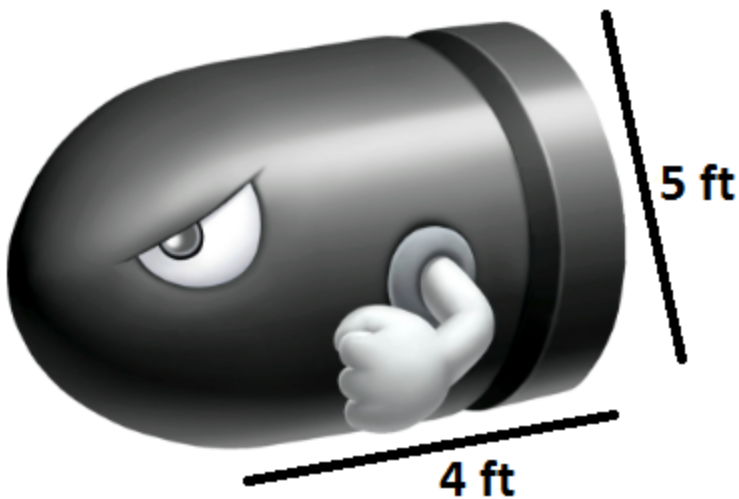
Lesson Objectives

- Summarize the key area and volume equations, and take a quiz

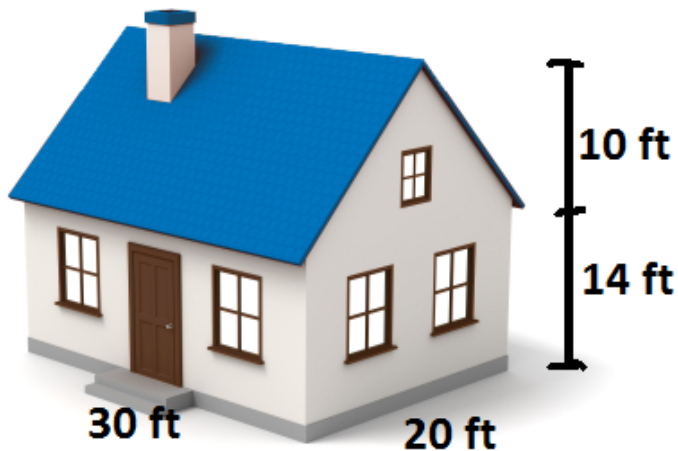
4. Determine the volume of toilet paper in the roll shown. (2009.6 cm³)



5. Determine the volume of Bullet Bill. The diameter of the bullet is 5 ft, and the uncurved length is 4 ft. (111.2 ft³)



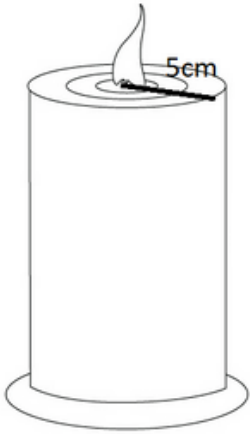
6. Determine the volume of the house. (11400 ft³)



UNIT 10 LESSON 18: DETERMINE DIMENSIONS OF 3D SHAPES

Lesson Objectives

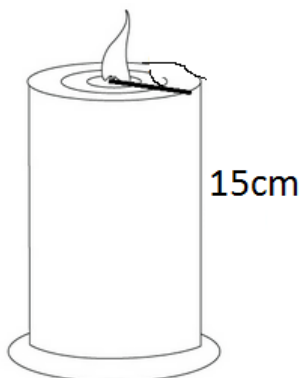
- Determine dimensions of shapes with given volumes
1. A candle company wants to redesign their candles to use 1000cm^3 of wax per candle. If the radius must be 5 cm, what will the height be? Round to the nearest whole centimeter.



2. Spheres are the most efficient container to store propane or butane in. If the tank must hold 100,000 gallons (aka $13,368\text{ ft}^3$), what must the radius be?



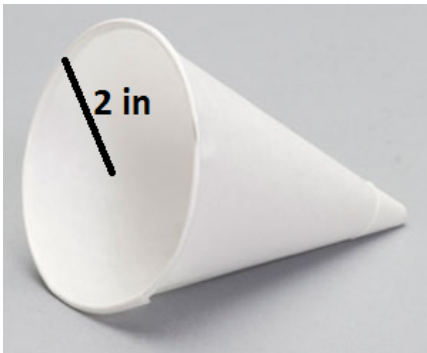
3. A candle company wants to redesign their candles to use 1000cm^3 of wax per candle. If the height must be 15 cm, what will the radius be? Round to the nearest whole centimeter.



4. A construction company has 113.04 ft^3 of metal to make a wrecking ball with. What will be the radius of the wrecking ball?



5. A company wants to sell paper cups that hold a pint of water ($1 \text{ pint} = 29 \text{ in}^3$). If the radius must be 2 inches, what must the height be?



6. Find the radius required if the fire extinguisher needs to hold a volume of 703.36 in^3 of sodium bicarbonate



Ex. Cred: Mr. Rose has decided to design his own bowl. He wants the bowl to hold 452.16 in^3 . What must the radius be?



UNIT 10 LESSON 19: INVESTIGATE THE EFFECT OF A DILATION ON VOLUMES

Lesson Objectives

- Discover the formula for the increase in volume caused by dilation.

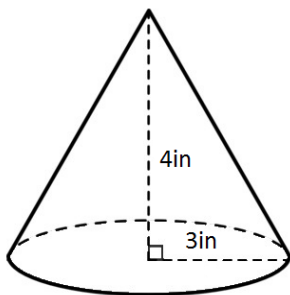
Farmer John wants to store the maximum amount of grain possible. So what holds more?

- 2 silos of the same size
- 1 silo that is dilated by a scale factor of 2

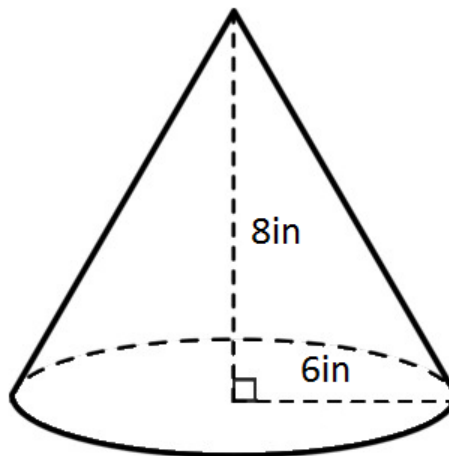


Directions: (1) Find the volume of both shapes. (2) Identify the scale factor. (3) Divide the volume of the larger shape by the volume of the smaller shape.

1. A



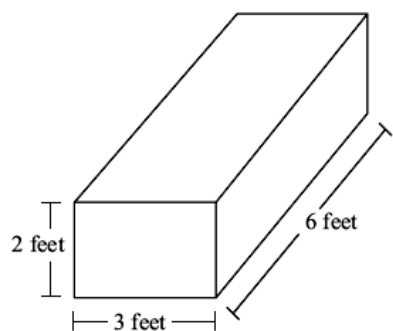
B



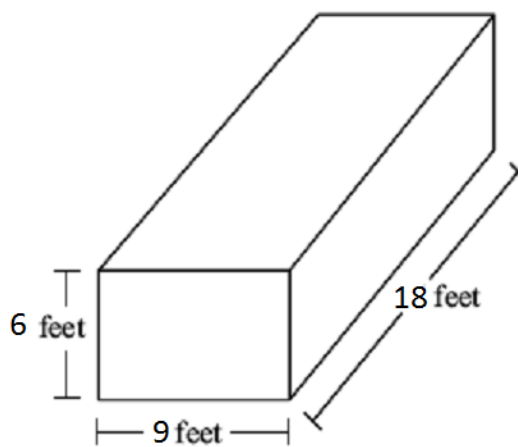
Scale Factor: _____

How much bigger is shape B? _____ times bigger.

2. A



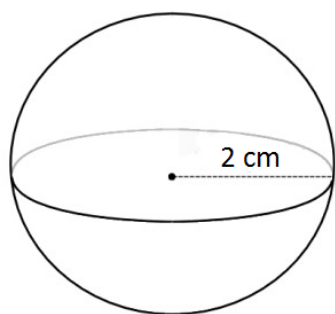
B



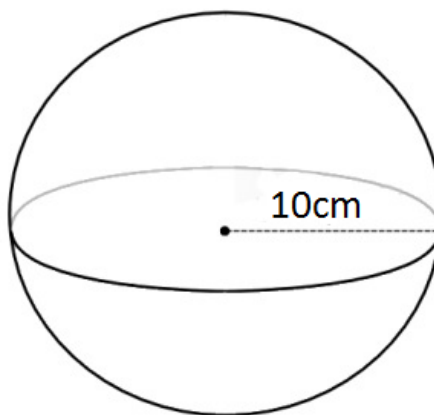
Scale Factor: _____

How much bigger is shape B? _____ times bigger.

3. A



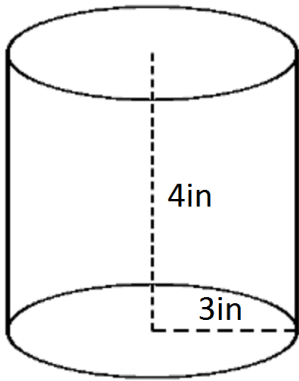
B



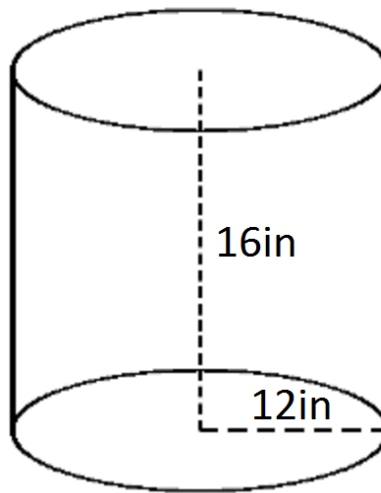
Scale Factor: _____

How much bigger is shape B? _____ times bigger.

4. A



B



Scale Factor: _____

How much bigger is shape B? _____ times bigger.

5. Fill in the following table using your answers from questions 1 through 4

Scale Factor	Increase in Volume
2	
3	
4	
5	
6	

6. Look for the pattern in the table above. What is the relationship between the scale factor and the increase in volume?

Unit 10 Lesson 20: Dilate Volumes

Lesson Objectives

- Apply the formula for the increase in volume caused by dilation.

Relationship of scale factor and volume change:

7. Sterlite wants to sell three sizes of tubs: small, medium and large.
- The dimensions (length, width, and height) of the medium are 2 times bigger than the small
 - The dimensions of the large are 3 times bigger than the small.



- a. How much volume does the medium tub hold in comparison to the small?
- b. If the small tub has a volume of 5 liters, what would be the volume of the large tub?
8. The radius and height of a can of soup are about 10 times smaller than a rain barrel. If a rain barrel holds 500 liters of water, how much water could a soup can hold?



9. The spherical tank below has a radius of 30 feet. If the company wants to sell a smaller version that holds 216 times less volume, what would be the smaller version's radius?



10. Mr. Rose is buying plastic shapes on Amazon.com. If the right pyramid is bigger than the left pyramid by a scale factor of 7, how much more volume could it hold?



11. The cone below has a volume of 4 ft^3 . By what scale factor would you dilate the cone if you wanted it to have a volume of 500 ft^3 ?



12. A standard bar of gold weighs about 30 pounds. It's about 7 inches long, 3 inches wide, and 2 inches tall (aka $7 \times 3 \times 2$). It's worth about \$500,000.



- How much would 2 standard bars of gold be worth? How much would they weigh?
- How much would a bar of gold that is $14 \times 6 \times 4$ be worth? How much would it weigh?
- Someone you don't like has a lot of gold and doesn't know anything about geometry. You say, "Bro, since you're my friend, check this out. A standard gold bar is $7 \times 3 \times 2$ and is worth \$500,000. Therefore, your $21 \times 9 \times 6$ bar is worth \$1,500,000, since it's 3 times bigger and $3 \times \$500,000$ is \$1,500,000. But since I like you so much, I'll give you \$2,000,000 for it!"

The person agrees. How much did you just profit?

Unit 10 Lesson 21: Visualize Cross Sections and Volumes of Rotation

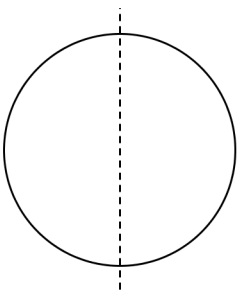
Lesson Objectives

- Determine which 2D cross sections can be made from a 3D shape
- Determine 3D volumes of rotation created by 2D shapes

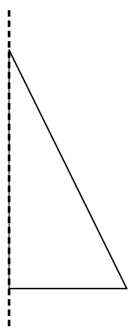
Cross Section: A ____ shape that can be cut from a ____ shape

Volume of Rotation: A ____ volume that can be made by rotating a ____ shape

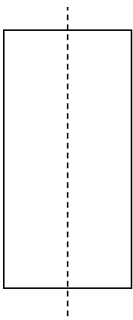
1. What volume of rotation is created by rotating a circle about its diameter?



2. What volume of rotation is created by rotating a right triangle about its leg?



3. What volume of rotation is created by rotating a rectangle about its line of reflection?



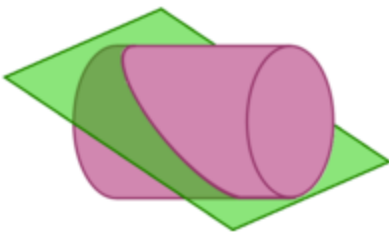
Cross Sections: Easy Mode

4. What cross section is created by slicing a square pyramid with a plane parallel to its base?
5. What cross section is created by slicing a cone with a plane parallel to its base?
6. What cross section is created by slicing a cone with a plane perpendicular to its base, through the tip?

7. What cross section is created by slicing a square pyramid with a plane perpendicular to its base, through the tip?
8. What cross section is created by slicing a cylinder with a plane perpendicular to its base?
9. What cross section is created by slicing a cylinder with a plane parallel to its base?
10. What cross section is created by slicing a sphere with a plane?

Cross Sections: Hard Mode

11. It **is** actually possible to create a cross section that is a point. How would you do this for cube?
12. It **is** actually possible to create a cross section that is a line. How would you do this for cylinder?
13. What cross section is created by slicing a cylinder with a plane as shown?



14. How can you create a triangle cross section with a cube?
15. Name 3 cross sections that can be created by slicing a cone

Cross Sections: Legendary Mode (Extra Credit)

16. What cross section is created by slicing a square pyramid with a plane perpendicular to its base, **not** through the tip?

17. What cross section is created by slicing a cone with a plane perpendicular to its base, **not** through the tip?
18. Name 4 cross sections that can be created by slicing a cube with a plane.

Unit 10 Lesson 22: Review of Volumes

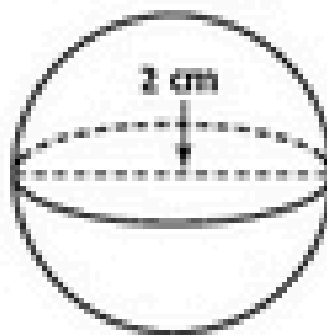
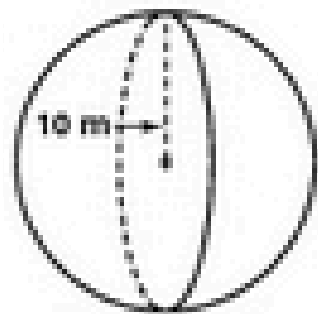
1. Determine the volume of the earth if the diameter is 7917 miles.



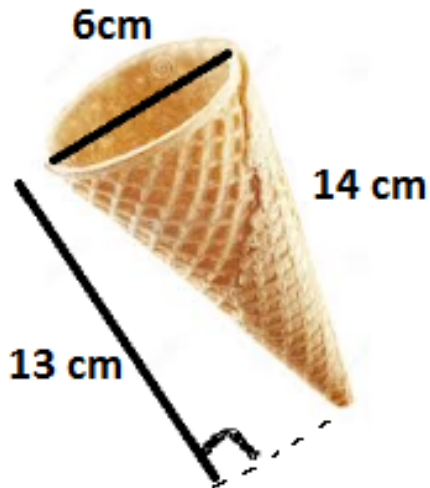
2. A standard bar of gold weighs about 30 pounds. It's about 7 inches long, 3 inches wide, and 2 inches tall (aka $7 \times 3 \times 2$). It's worth about \$500,000. What is the volume of the bar of gold?



3. Determine the volumes of these two spheres



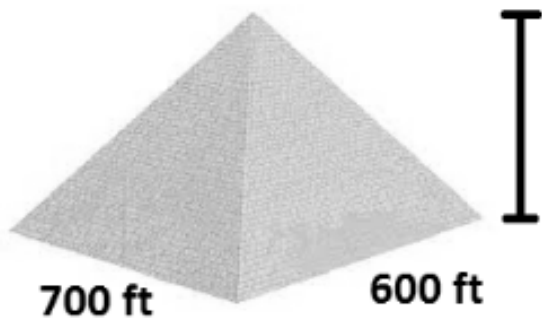
4. Determine the volume of ice cream that could fit in the cone.



5. If the volume of the cylinder is 50.24 in^3 , what is the radius?



6. If the volume of the pyramid is $168,000,000 \text{ ft}^3$, what is the height?

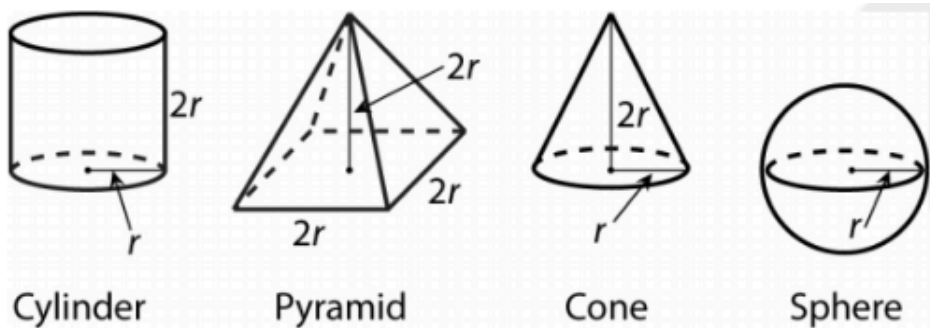


Unit 10 Lesson NA: Advanced Volume Questions

Lesson Objectives

- Solve volume questions that have a twist or two

1. Order the shapes by volume from greatest to least. Justify your answer (show your work)



2. Dog and Cat are given equal amounts of clay. Dog uses all his clay to make a cylinder with a radius of 3 inches and a height of 4 inches. Cat has $24\pi \text{ inches}^3$ of clay left over after making a cylinder with a height of 3 inches. What is the radius of Cat's cylinder?
3. Dog and Cat are given equal amounts of clay. Dog uses all his clay to make a cylinder with a radius of 2 inches and a height of 4 inches. Cat has $4\pi \text{ inches}^3$ of clay left over after making a cylinder with a height of 4 inches. What is the radius of Cat's cylinder?

4. Pikachu needs 550 in^3 of space in the pokeball. How big must the radius be so Pikachu will be comfy?



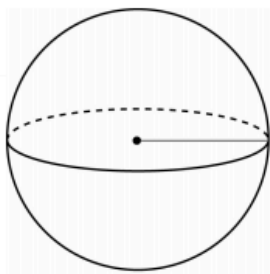
5. A company wants to use 1600 in^3 of stainless steel to make spheres. How big must the diameter of the sphere be?



6. In Costa Rica, there are stone spheres created hundreds of years ago by Diquis people. One way to determine their radius is to first determine their volume using water. If researchers determined that the volume of one is $65,417 \text{ in}^3$, what is the radius of the stone sphere?



7. If the volume is 268 cm^3 , what is the radius of this sphere?



14ft

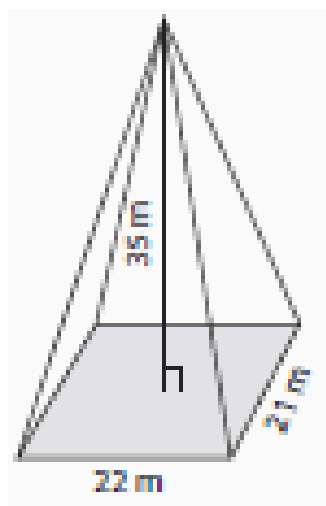
2ft



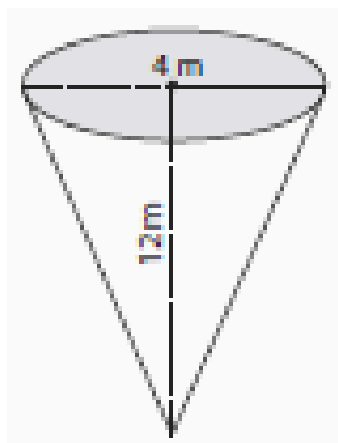
4cm

5cm

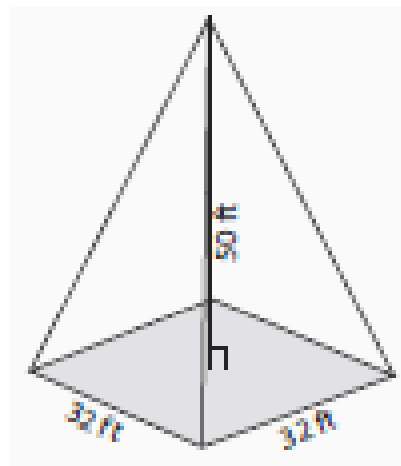
1.



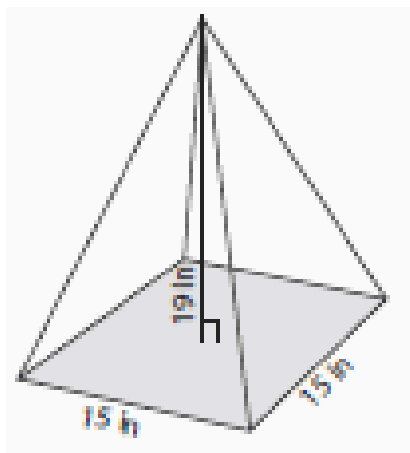
2.



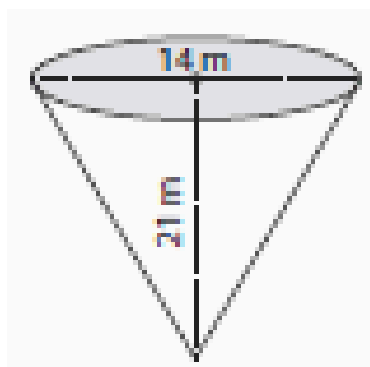
3.



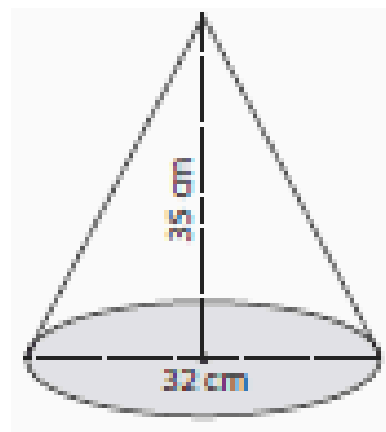
4.



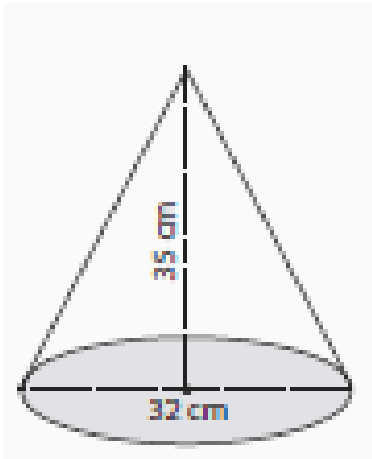
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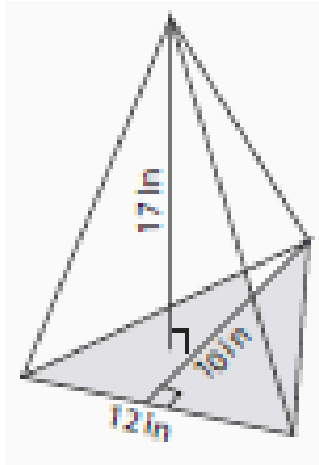
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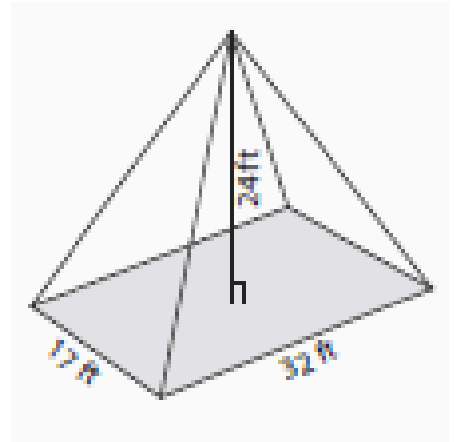
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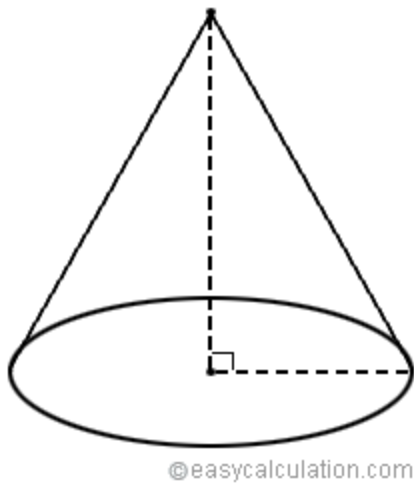
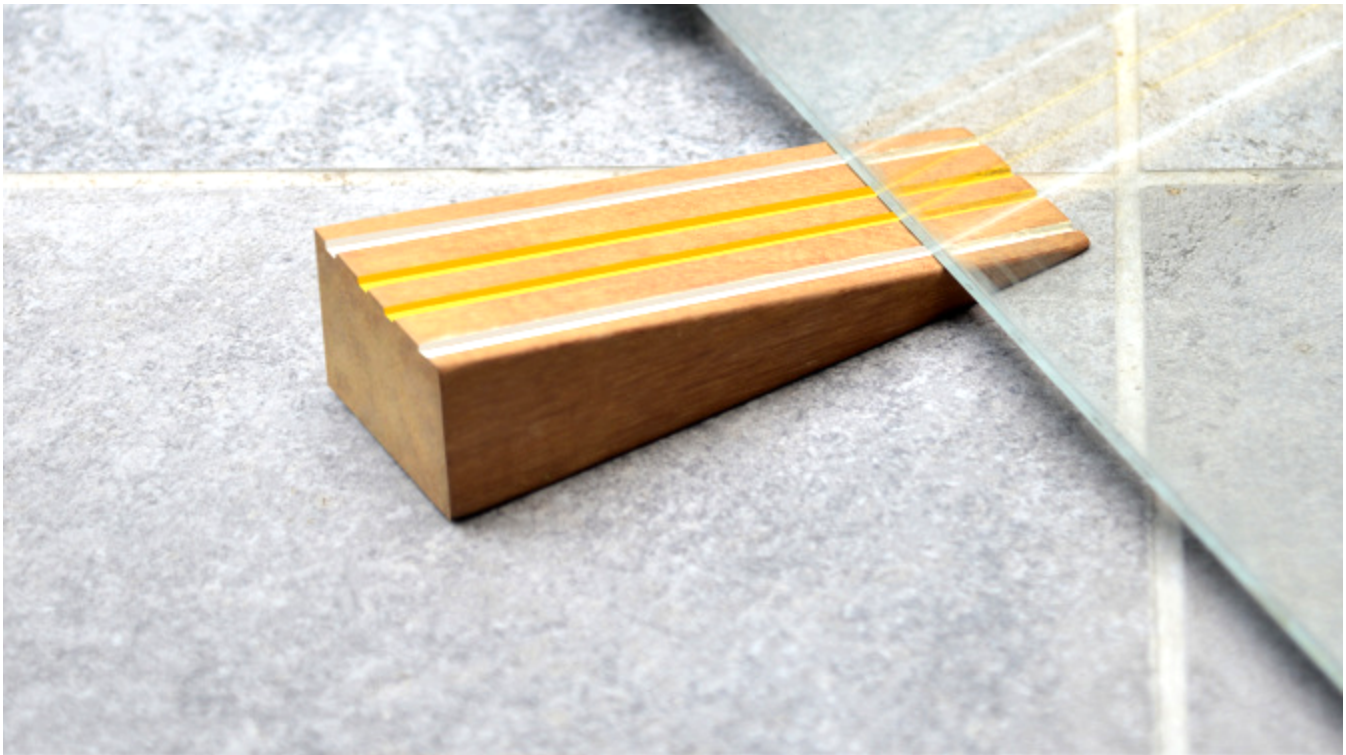
5.



6.



dia 7917 miles



1.

Unit 10 Lesson 23: Surface Area

Lesson Objectives

- Determine the surface areas of rectangular prisms and cylinders
1. A company wants to print designs on the sides of their packages. Determine the number that would be most helpful for the company to determine their costs.

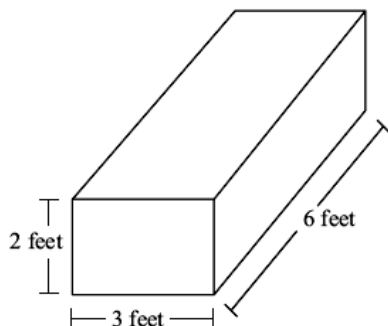


2. A company wants to create metal cans to package their product.

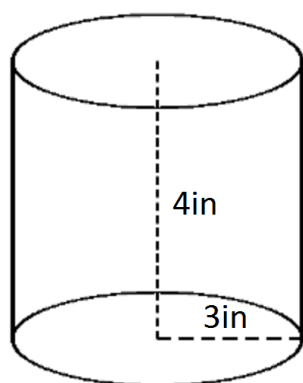


Determine the surface areas of the following shapes.

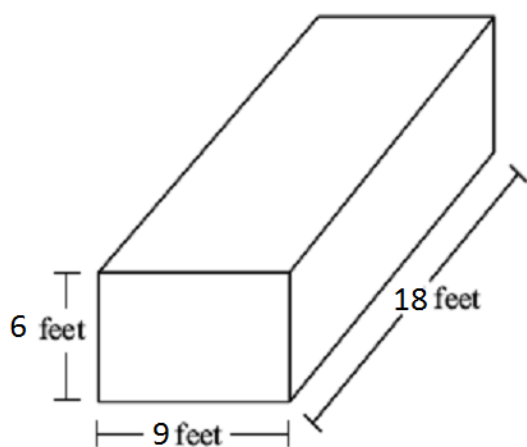
3.



4.



5.



6.

