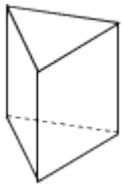
Math 2 Unit 13 Worksheet 1
Three Dimensional Solids and Area Review

Name:_____
Date:_____ **Per:**_____

Prism

A solid with two bases that are congruent and parallel.

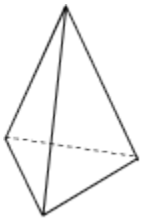
This figure is a triangular prism because the bases are triangles.



Pyramid

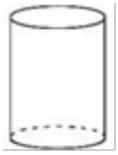
A solid with one base and faces that meet at a point.

This figure is a triangular pyramid because the base is a triangle.



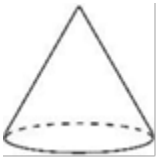
Cylinder

A prism with circular bases.



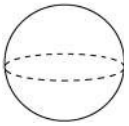
Cone

A pyramid with a circular base.



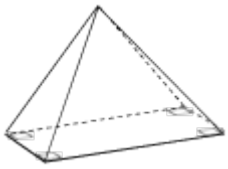
Sphere

A solid in which each point is equidistant from a center point.



[1-12] a) Classify each solid.
b) Highlight the base(s). If the solid does not have a base, write "No base".
c) Label the height 'h' (draw the height when needed). If the solid does not have a height, write "No height".

1.



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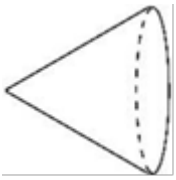

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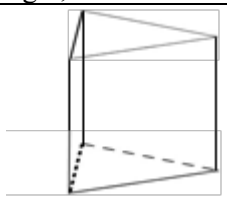

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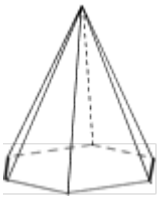

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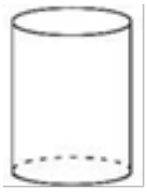

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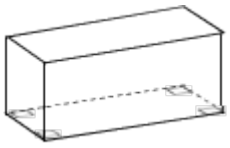

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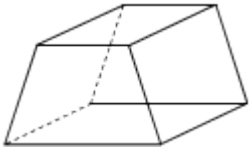

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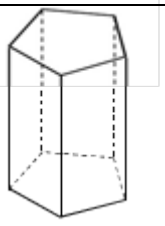
9.



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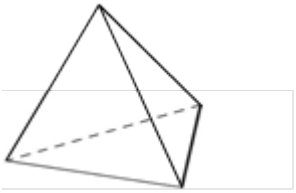

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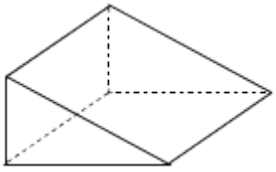

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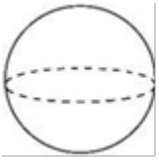
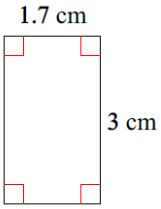


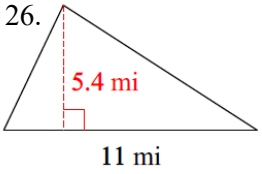
[13-24] Draw the figure and highlight the base. If the solid does not have a base, write "No base".

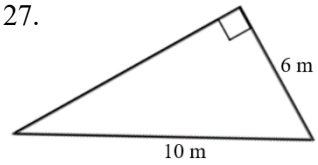
13. Cylinder	14. Cone	15. Prism with hexagonal base
16. Pyramid with a triangular base	17. Sphere	18. Hemisphere
19. Triangular prism on its base	20. Triangular prism on its side	21. Cone with a radius of 4 m and a height of 3 m
22. Cylinder with a cone on its top base (both cylinder and cone have the same size base)	23. Cube with side length of 2 units, with a square pyramid on top with a height of 4 units	24. Cylinder with a height of 5 cm and a radius of 8 cm

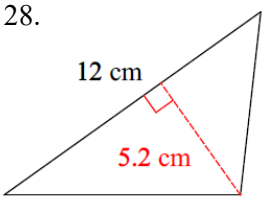
Area Review

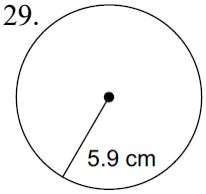
[25-28] Find the area. Round your answer to the nearest tenth. Include correct units with your answer.

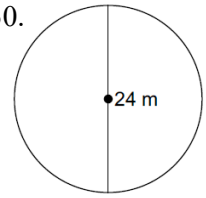
25. 

26. 

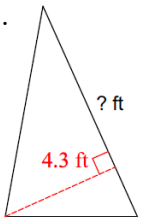
27. 

28. 

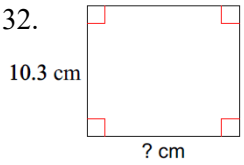
29. 

30. 

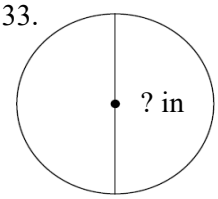
[31-34] Find the missing measurement. Round answer to the nearest tenth.

31. 

Area = 17.6 ft²

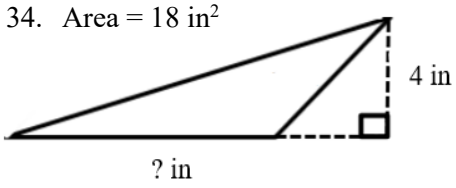
32. 

Area = 123.6 cm²

33. 

Area = 16π in²

34. Area = 18 in²



Math 2 Unit 13 Worksheet 2
Volumes of Solid Figures

Name:_____
Date:_____ **Per:**_____

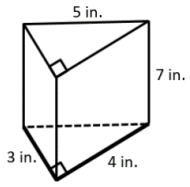
Volume Formulas

Prism or Cylinder: $V = Bh$ where B is the area of the Base	Pyramid or Cone: $V = \frac{1}{3}Bh$ where B is the area of the Base	Sphere: $V = \frac{4}{3}\pi r^3$

[1-10] Find the volume of each solid, when appropriate leave answers in terms of π.

1. A cylinder with a base area of 12 in^2 and a height of 3 in.

2. A pyramid with a base area of 5 cm^2 and a height of 2 cm.

3.


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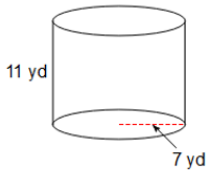

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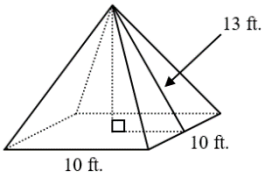

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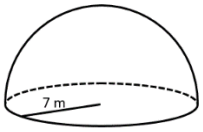

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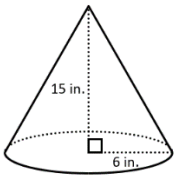
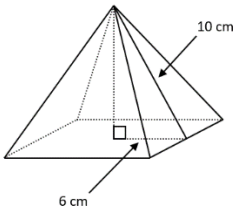


8. Figure below is a square based pyramid.


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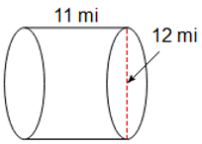

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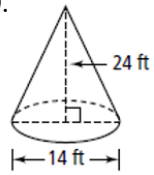

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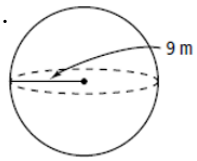

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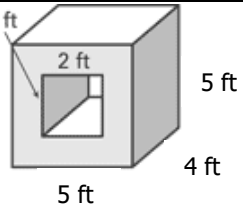
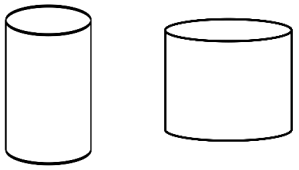
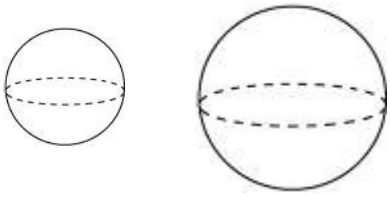


13. What is the difference in volume of the two can types, to the nearest cubic centimeter?
Can A has a diameter of 6 cm and a height of 11.5 cm.
Can B has a diameter of 16 cm and a height of 6.5 cm.

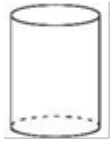


14. Sphere A has a radius of 5 feet and sphere B has a radius of 10 feet. Compute the volume of each. How do the two volumes compare? Be specific!

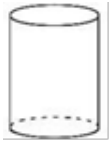


[15-21] Use the given information to find the missing dimension.

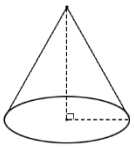
15. The volume of a right cylinder is 448π.
The diameter is 16 ft. What is the height?



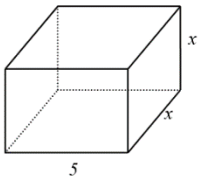
16. The height of a right cylinder is 12 cm.
The volume is 2352π cm^3. What is the radius?



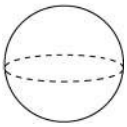
17. The volume of a cone is 300π in^3.
The height is 9 in. What is the radius?



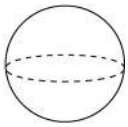
18. Rectangular prism with a volume 80 cm^3.
What is the value of x?



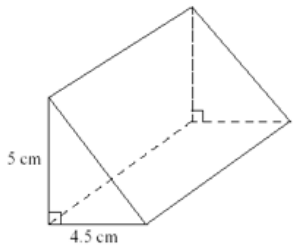
19. A sphere has a volume of 36π in^3.
What is the radius?



20. A sphere has a volume of 2304π ft^3.
What is the diameter?

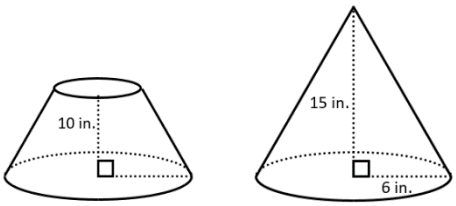


21. The volume of the triangular prism below is 90 cm^3. Find the height of the prism, x.



[22-24] Challenge

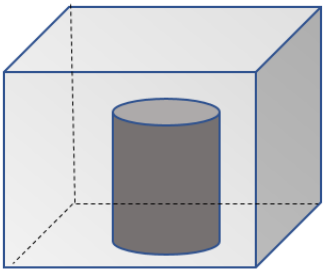
22. Find the volume of the truncated cone, which was created from the given right circular cone.



23. Below is a packing box with a cylindrical can inside. To ship the box, packing material must be added. What volume of packing material is needed in order to fill the box completely?

Can: radius = 3 in
height = 7 in

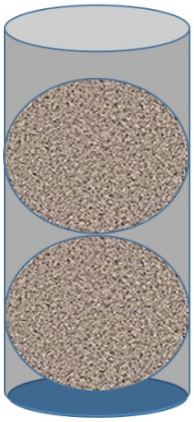
Box: length = 9 in
width = 9 in
height = 10 in



24. Below is a tube filed with two spheres and a liquid. Find the volume of the liquid.

Tube: diameter = 8 cm
height = 20 cm

Sphere: diameter = 8 cm



Math 2 Unit 13 Worksheet 3
How Many Gumballs?

Name:_____
Date:_____ **Per:**_____

Jumbo Giant Gumball Machine

In Stock

Regular: **$2,495.00**

Product Options:

*Body Color: Red

*Coin Mechanism: --choose--

Quantity: 1 Add to Cart

Estimate Shipping Add to Wishlist

Jumbo Giant Gumball Machine

At 79 inches tall (6'10"), our Jumbo Giant Gumball Machine is one HUGE gumball machine that will tower over children and adults alike! This gumball machine has a massive globe that can hold [redacted] gumballs, but comes with a smaller inner globe to allow you to stock it with [redacted] gumballs to save money and still make it look full (inner globe takes up space and pushes gumballs to outer globe). This is the same giant gumball machine seen in arcades, amusement parks, and shopping malls. It's 7-foot tall size towers over kids, and stands out in a crowd, and even turns your location into a photo op! The Jumbo Giant Gumball Machine comes with the industry-leading, top-quality Beaver coin mechanism for years of service and that authentic "click-clack" sound when turned. It has a sturdy construction with a 42" diameter fiberglass base and acrylic globe with metal retaining band. The lid on top of the globe unlocks and opens for easy refilling (step ladder not included!).

Features & Specifications:

- The sheer size of this machine constantly attracts customers
- Very intriguing to children
- Top quality 25¢ Beaver coin mechanism (can also be set for free-spin or tokens)
- Foreign currency coin mechanism is $100 extra
- Easy maintenance and huge holding capacity
- Measures 79" Tall and 42" in diameter 35" Outer Globe
- Includes 25" inner globe allowing machine to always look full (capacity without inner globe is [redacted] gumballs, with inner globe is reduced to [redacted] gumballs but still looks full)
- Holds [redacted] gumballs sized .92"-1-inch!
- Made in the USA
- 90 Day manufacturer's warranty
- Weight: 128 lbs

Related Items

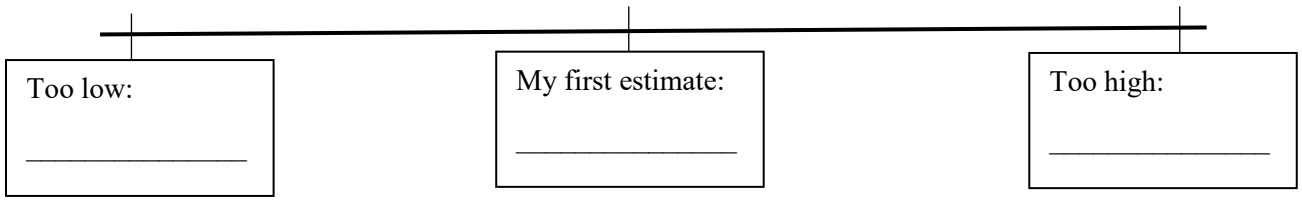
Giant Wizard Spiral Gumball Machine

Mega Wizard Spiral Gumball Machine

Junior Giant Gumball, Bouncy Ball & Toy Machine

1. What is the volume of the gumball machine if the inner globe is not installed?

2. a) Estimate the **number of gumballs** held by the machine when the inner globe is not installed.



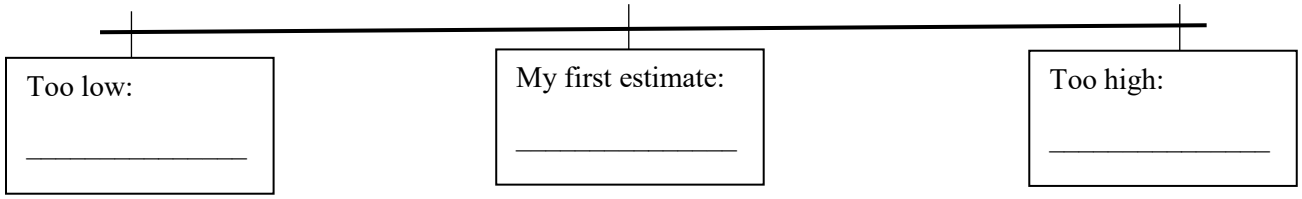
*A fact to help improve your estimate: The gumballs used have a diameter of 1 inch.

b) Use this information to improve your estimate. Show that work here:

c) What is your improved estimate? In words, explain your rational for this answer.

3. What is the volume of the gumball machine if the inner globe is installed?

4. a) Estimate the **number of gumballs** held by the machine when the inner globe *is* installed.



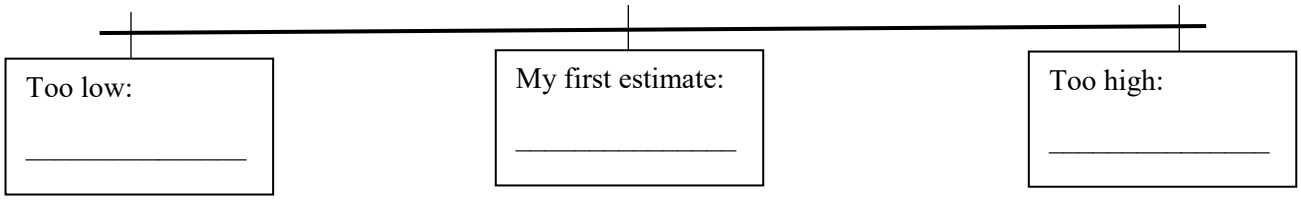
* Recall the fact to help improve your estimate: The gumballs used have a diameter of 1 inch.

b) Use this information to improve your estimate. Show that work here:

c) What is your improved estimate? In words, explain your rational for this answer.

Math 2 Unit 13 Worksheet 4 **Name:**_____
Lift the Rainbow **Date:**_____ **Per:**_____

1. How many skittles are in the barbell?
   a) Begin by estimating a range of answers:

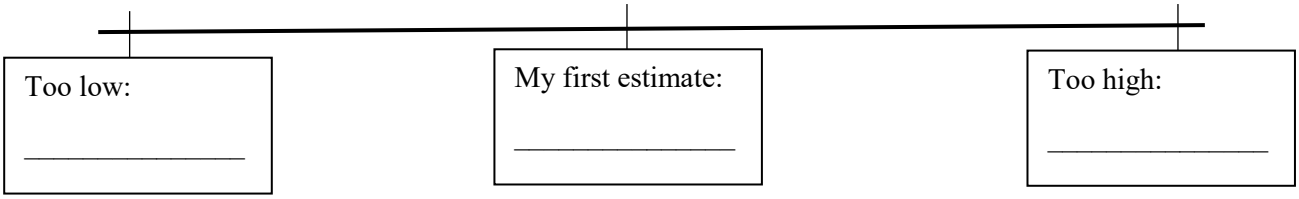


   b) What do you need to know to calculate a more exact answer to the question?

   c) Use this information to improve your estimate. Show that work here:

   d) What is your improved estimate? In words, explain your rational for this answer.

2. How much does this barbell weigh?
   a) Begin by estimating a range of answers:

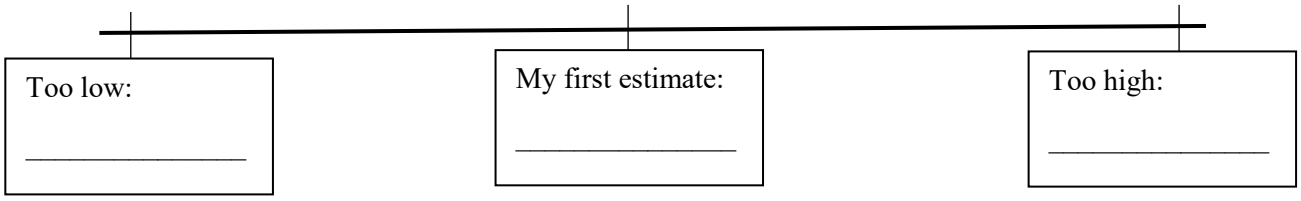


   b) What do you need to know to calculate a more exact answer to the question?

c) Use this information to improve your estimate. Show that work here:

d) What is your improved estimate? In words, explain your rational for this answer.

3. How much did it cost to fill the barbell used in the ad?
   a) Begin by estimating a range of answers:



   b) What do you need to know to calculate a more exact answer to the question?

   c) Use this information to improve your estimate. Show that work here:

   d) What is your improved estimate? In words, explain your rational for this answer.

4. If the barbell was made with spheres of radius 15, would it hold more or less skittles?
    a) Calculate your answer. Show that work here:

    b) In words, answer the question and explain the rational for your answer.

5. If the barbell was made with spheres of radius 15, how much would it weigh?
    a) Calculate your answer. Show that work here:

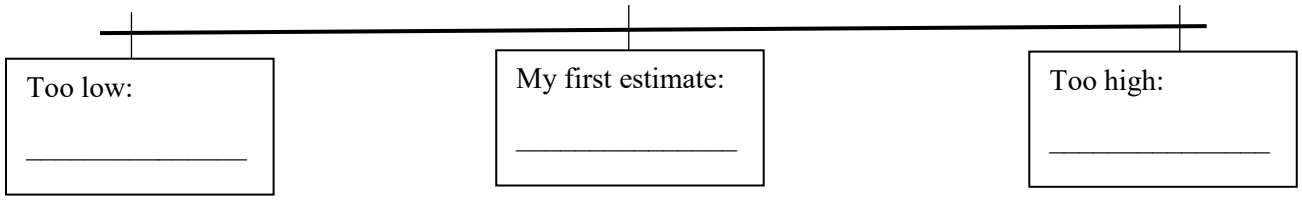
    b) In words, answer the question and explain the rational for your answer.

6. If the barbell was made with spheres of radius 15, how much would cost to fill?
    a) Calculate your answer. Show that work here:

    b) In words, answer the question and explain the rational for your answer.

Math 2 Unit 13 Worksheet 5 **Name:**_____
Cigarette Litter **Date:**_____ **Per:**_____

1. How many cigarettes are littered on average per day in the US?
   a) Begin by estimating a range of answers:

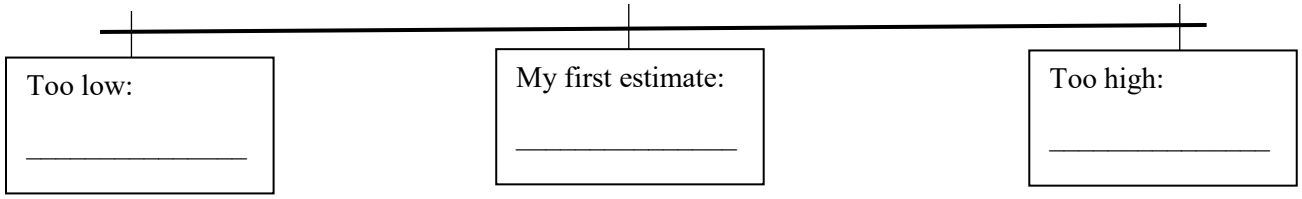


   b) What do you need to know to calculate a more exact answer to the question?

   c) Use this information to improve your estimate. Show that work here:

   d) What is your improved estimate? In words, explain your rational for this answer.

2. What is the volume of cigarette liter produced each day in the US?
   a) Begin by estimating a range of answers:



   b) What do you need to know to calculate a more exact answer to the question?

   c) Use this information to improve your estimate. Show that work here:

d) What is your improved estimate? In words, explain your rational for this answer.

3. Would that volume of cigarette litter fit in your classroom?
   a) Calculate your answer. Show that work here:

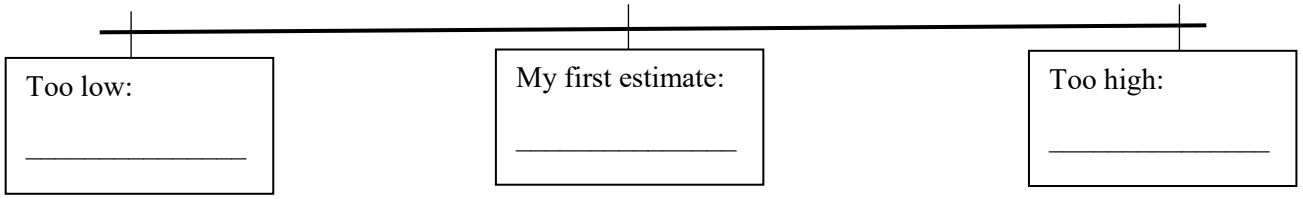
   b) In words, answer the question and explain the rational for your answer.

4. How many days of cigarette litter could fit in an auditorium?

5. How many days of cigarette litter could fit in a stadium?

Math 2 Unit 13 Worksheet 6 **Name:**_____
Guatemalan Sink Hole **Date:**_____ **Per:**_____

1. How much material will they need to fill the sinkhole?
   a) Begin by estimating a range of answers:



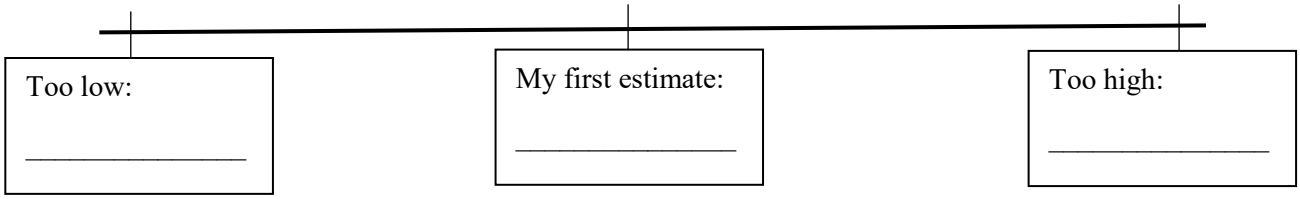
   b) What do you need to know to calculate a more exact answer to the question?

   c) Use this information to improve your estimate. Show that work here:

   d) What is your improved estimate? In words, explain your rational for this answer.

2. If they fill the hole with concrete, how much would the concrete itself cost? (ignore labor and other materials)

   a) Begin by estimating a range of answers:



b) What do you need to know to calculate a more exact answer to the question?

c) Use this information to improve your estimate. Show that work here:

d) What is your improved estimate? In words, explain your rational for this answer.

Math 2 Unit 13 **Name:**_____
Review Worksheet **Date:**_____ **Per:**_____

[1-4] Find the area of the basic figures. Round to the nearest tenth if needed.

1. Square with a side of 17 cm

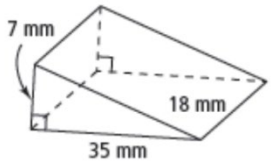
2. Circle with a diameter of 17cm

3. Triangle with a base of 8 cm and a height of 4cm

4. Equilateral triangle with side length of 30cm

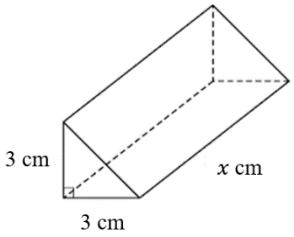
5. The circumference of a circle is 8π cm. Find the area of the circle. Express answer in terms of π and rounded to the nearest tenth.

6. Find the volume.

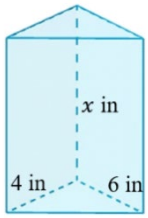


[7-8] Find the value of x in the right triangular based prisms with the given volumes.

7. $V = 126$ cm^3

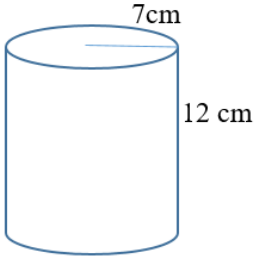


8. $V = 132$ in^3

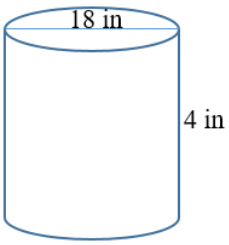


[9-10] Find the volume of the cylinders below. Express answer in terms of π and rounded to the nearest tenth.

9.

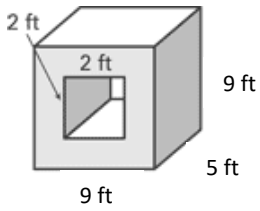


10.

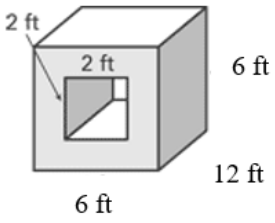


[11-12] Find the volume of the solids.

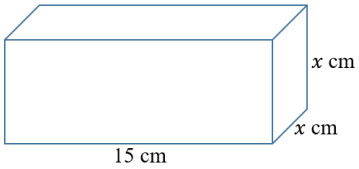
11.



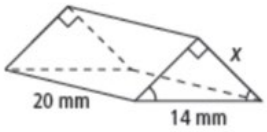
12.



13. Find the value of x if the volume is 135 cm^3

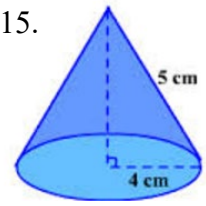


14. Find the value of x if the volume is 980 mm^3

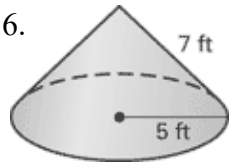


[15-16] Find the volume of the cones. Express answer in terms of π and rounded to the nearest tenth.

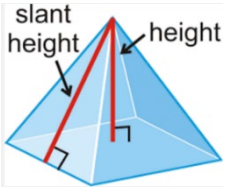
15.



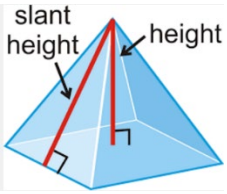
16.



17. Find the volume of a square pyramid with a base edge of 16 cm and a slant height of 10 cm.



18. Find the volume of a square pyramid with a base edge of 13 in and a slant height of 12.8 in.

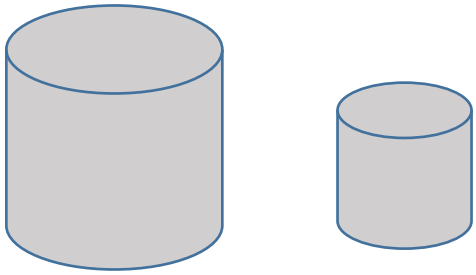


19. Find the diameter of a sphere with a volume of 2304π cm^3.

20. Find the diameter of a sphere with a volume of 288π in^3.

21. Sphere A has a radius of 9, sphere B has radius 18, how do the volumes compare?

22. There are two cans, one tall and one short. The area of the base of both cans is 2π cm^2. The volume of the tall can is 18π cm^3. The short can is 3cm shorter than the tall can. What is the volume of the short can?



23. The radius of a sphere is 12 cm. Find the volume of the sphere. Express answer in terms of π and rounded to the nearest tenth.

24. A spherical scoop of ice cream with a diameter of 4 cm rests on top of a sugar cone that is 10 cm deep and has a diamter of 4 cm. If all the ice cream melts into the cone, how much of the cone can be filled with whipped cream (without overflowing)?

25. A sinkhole formed in the centerfield of Dodger stadium. The engineering crew hired to fill the hole decided to use a cylinder and a hemisphere to model the hole. They estimated the total depth to be 8 feet, and the diameter to be 10 feet. What is the approximate volume of the sinkhole?