

WS 10-1-1 "UNIT CONVERSION"

Name: _____ Block: _____

*Please neatly complete all work on this worksheet. NO CALCULATOR!
You MUST show your unit analysis as well as your final answer.*

Metric Conversions

$$1 \text{ km} = 1000 \text{ m}$$

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ cm} = 10 \text{ mm}$$

Complete the following unit conversions, using unit analysis.

1. $40 \text{ mm} = \underline{\hspace{2cm}} \text{ m}$

2. $5000 \text{ m} = \underline{\hspace{2cm}} \text{ km}$

3. $8 \text{ m} = \underline{\hspace{2cm}} \text{ km}$

4. $200 \text{ km} = \underline{\hspace{2cm}} \text{ m}$

5. $1000 \text{ mm} = \underline{\hspace{2cm}} \text{ km}$

6. $400 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

7. $20 \text{ mm} = \underline{\hspace{2cm}} \text{ km}$

8. $9000 \text{ m} = \underline{\hspace{2cm}} \text{ mm}$

9. $6 \text{ m} = \underline{\hspace{2cm}} \text{ mm}$

10. $210 \text{ mm} = \underline{\hspace{2cm}} \text{ km}$

11. $7283 \text{ mm} = \underline{\hspace{2cm}} \text{ m}$

12. $2.8 \text{ m} = \underline{\hspace{2cm}} \text{ mm}$

WS 10-1-1 "UNIT CONVERSION"

Name: _____ Block: _____

13. 40 ml = _____ L

14. 5000 L = _____ kl

15. 8 g = _____ kg

16. 200 kg = _____ g

17. 1000 mg = _____ kg

18. 400 cg = _____ g

19. 20 ml = _____ kl

20. 9000 L = _____ ml

21. 6 g = _____ mg

22. 210 ml = _____ kl

23. 7283 ml = _____ L

24. 2.8 g = _____ mg

Circle the largest metric measurement in each question.

1. 500 cm, 5000 mm, 4 m

2. 0.2 L, 240 mL, 50 cL

3. 3000 mg, 250 cg, 3 kg

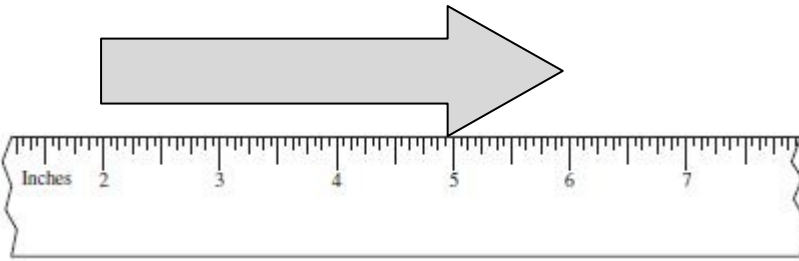
Circle the smallest metric measurement in each question.

1. 4 L, 5000 mL, 23,000 cL

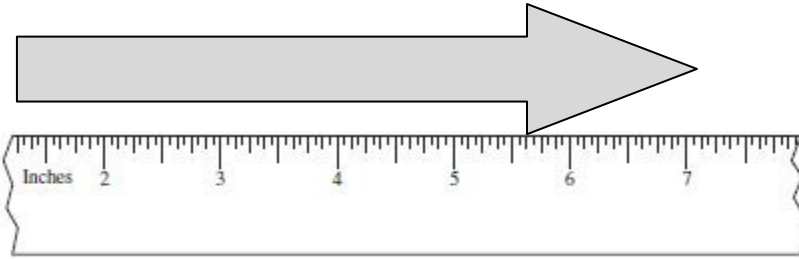
2. 17 m, 17,040,000 cm,
17,400,000,005 mm

3. 2000 cg, 25,300 mg, 2.5 Kg

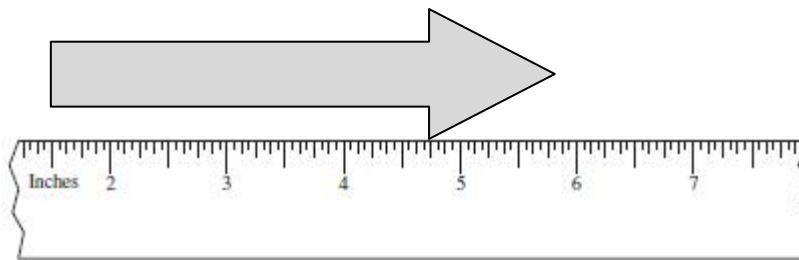
1. Find the measurement of the following shapes in inches. Don't forget your mixed numbers!



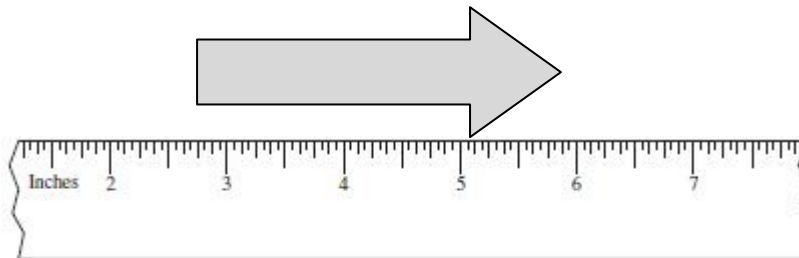
Length:



Length:



Length:



Length:

2. Draw a line of each of the following lengths.

a. $1\frac{1}{2}$ in.

b. $1\frac{3}{4}$ in.

c. $1\frac{7}{8}$ in.

d. $1\frac{1}{16}$ in.

3. Convert the following decimal numbers to mixed numbers.

a. 2.5

c. 8.25

e. 9.875

b. 7.2

d. 6.45

f. 1.405

WS 10-1-3 "IMPERIAL MEASURE"

Name: _____ Block: _____

Please neatly complete all work on this worksheet. Remember proper form & box your final answers.

1. Which imperial unit is the most appropriate unit to measure each item?
 - a. The height of the ceiling
 - b. The thickness of your textbook
 - c. The height of your car
 - d. The distance from home to school

2. Use a referent to estimate the length of your calculator. Measure with a ruler to check.

3. Convert:
 - a. 4 mi. to feet
 - b. 40 yd. to feet
 - c. 96 in. to feet
 - d. 50 ft. to yards
 - e. 11 220 ft. to miles
 - f. 40 in. to feet, and inches
 - g. 86 in. to yards, feet, and inches
 - h. 138 in. to yards, feet, and inches

6. Simi is building a chicken coop. The perimeter of the coop is 46 ft.
 - a. Convert the perimeter of the chicken coop to yards and feet
 - b. The chicken wire is sold by the yard. If it costs \$3.00/yd., how much will Simi have to pay to build her chicken coop?

WS 10-1-3 "IMPERIAL MEASURE"

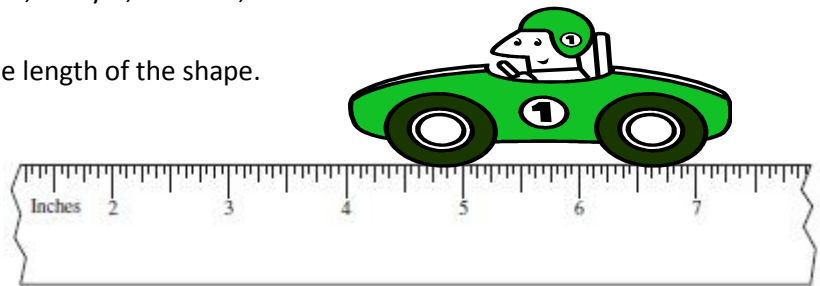
Name: _____ Block: _____

- 7. Josh has 14 yd. of material that he will cut into strips 9 in. wide to make a weave.
 - a. Convert the total length of material to inches.
 - b. How many weaves can Josh make?

- 8. Sundeep converted 135 in. into yards, feet and inches and got 3 yd. 2 ft. Is her answer correct? If not, show the correct conversion.

- 9. Which dimension is the largest: $\frac{1}{2}$ mi., 800 yd., 2500 ft., 27 500 in.?

10. Using the ruler below, determine the length of the shape.



- 11. Sonny is planting potato plants in his garden 9 in. apart. How many potato plants will fit into Sonny's 12 ft. garden?

- 12. A map of Quebec has a scale of 1:1 500 000. On the map, the distance between Trois-Rivieres and Quebec City is $2\frac{5}{8}$ in. What is the distance between these cities to the nearest mile?

- 13. A model airplane has a scale of 1:1000. If the model is 10 in. long, how long would the actual airplane be in yards, feet and inches?

WS 10-1-4 "METRIC MEASURE"

Name: _____ Block: _____

Please neatly complete all work on this worksheet. Remember proper form & box your final answers.

1. Which metric unit is the most appropriate unit to measure each item?
 - a. The height of the ceiling
 - b. The thickness of your textbook
 - c. The height of your car
 - d. The distance from home to school

2. Use a metric measure referent to estimate the length of your binder. Measure with a ruler to check.

3. Determine the unit conversion ratios for converting from:
 - a. Kilometres to metres

 - b. Centimetres to millimetres

 - c. Metres to millimetres

4. Convert:
 - a. 4 m to mm
 - b. 1 200 m to km
 - c. 5.3 cm to mm
 - d. 7450 cm to m
 - e. 642 000 cm to km
 - f. 3.5 cm to mm
 - g. 5.32 m to cm
 - h. 3.4 km to cm

WS 10-1-4 "METRIC MEASURE"

Name: _____ Block: _____

5. Calculate. (Don't forget you must be in the same units in order to add or subtract. Convert first!)

a. $4\text{ m} + 30\text{ cm}$

c. $5\text{ cm} - 2\text{ mm}$

e. $5\text{ km} - 42\text{ m}$

b. $3\text{ km} + 3\text{ m}$

d. $2\text{ m} - 11\text{ cm}$

f. $3\text{ cm} - 12\text{ mm}$

6. A florist requires 25 cm of ribbon for each bouquet of flowers she creates. How many bouquets will she be able to create from 10 m of ribbon?

7. An airline will accept luggage whose length, width, and height add up to no more than 50 cm. Will the airline accept a box on its flight if it has the following dimensions: 0.2m x 0.1m x 0.6m?

8. Convert:

a. 5 250 mg to kg

b. 4 290 000 micrograms to hectograms

9. Identify the error(s) in the following measurement conversions:

a. $125\text{ mm} \times \frac{1000\text{ m}}{1\text{ mm}} \times \frac{1\text{ km}}{1000\text{ m}} = 125\text{ km}$

b. $250\text{ kg} \times \frac{1\text{ kg}}{1000\text{ g}} \times \frac{1000\text{ mg}}{1\text{ g}} = 250\text{ mg}$

c. $50\ 000\text{ millilitre} \times \frac{1000\text{ millilitre}}{1\text{ litre}} \times \frac{1\text{ kilolitre}}{1000\text{ litres}} = 0.05\text{ kilolitres}$

**WS 10-1-5 "RELATING METRIC/IMPERIAL MEASURES"
& Measuring with Vernier Calipers!**

Name: _____ Block: _____

Please neatly complete all work on this worksheet. Remember proper form & box your final answers.

1. Convert each measurement. Answer to the nearest tenth.

a. 14 in. to cm

d. 1240 yd. to km

g. 3 ft. 4 in. to cm

b. 6 ft. to m

e. 3 mi. to km

h. 6 yd. 2 ft. 3 in. to cm

c. 4 yd. to m

f. 1 in. to mm

i. 18 yd. 1 ft. 5 in. to m

2. Convert each measurement. Answer to the nearest unit.

a. 22 mm to in.

c. 8 m to yd.

b. 4.5 m to ft.

d. 230 km to mi.

3. The Fraser River is approximately 1375 km long. The Tennessee River is approximately 886 mi. long. Which river is longer?

4. Andy's Candy Store advertises a sale on swedish berries for \$0.45/100 g. Sarah's Sweets is selling swedish berries for \$1.25/oz. Which store has the better price?

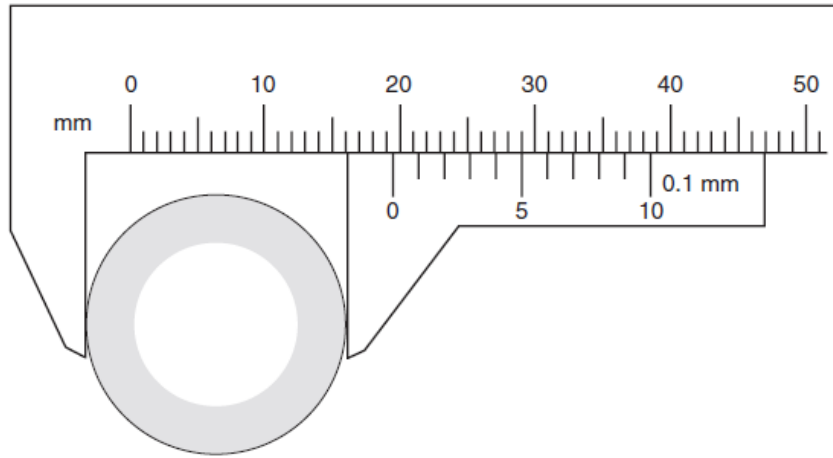
5. The rim of a basketball net is mounted 10 ft. off the ground. A basketball player has a maximum reach of 2.5 m. How high, in inches, does the player need to jump to reach 6 in. above the rim?
HINT: Draw a diagram!

**WS 10-1-5 "RELATING METRIC/IMPERIAL MEASURES"
& Measuring with Vernier Calipers!**

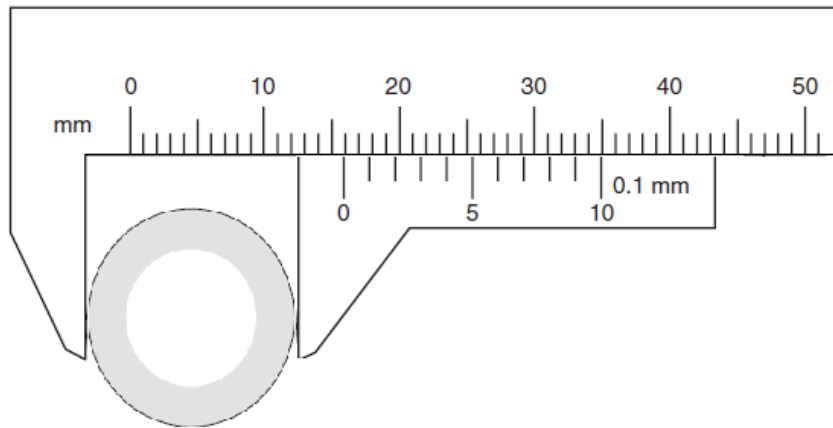
Name: _____ Block: _____

6. Read the following Vernier calipers measurements to the nearest 10th of a millimetre.

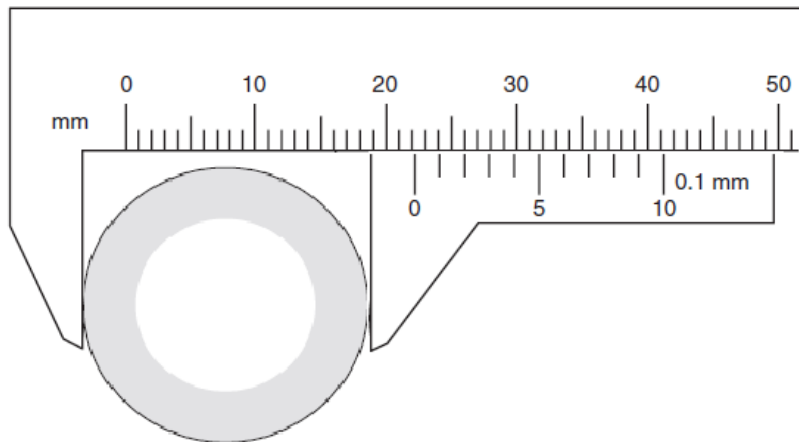
a.



b.



c.



7. Find the following measurements on the Vernier caliper on the website listed below:
<http://www.physics.smu.edu/~scalise/apparatus/caliper/tutorial/simulation.html>

a. 5.6 mm

b. 8.2 mm

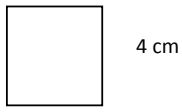
c. 3.5 mm

d. 2.9 mm

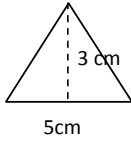
WS 10-1-6 "SURFACE AREA REVIEW"

Name: _____ Block: _____

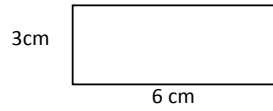
1. Calculate the area of the following shapes.



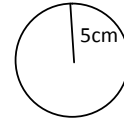
Area: _____



Area: _____



Area: _____

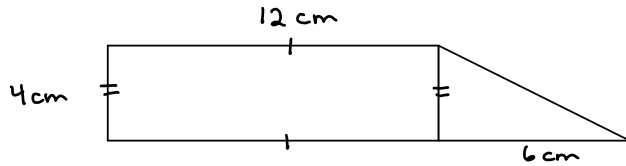


Area: _____

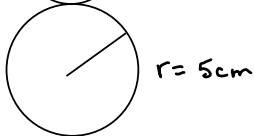
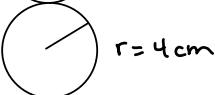
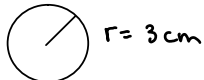
2. Calculate the area of shapes with the given dimensions.

- A rectangle with a length of 4 cm and a width of 2 cm.
- A triangle with a base of 10 cm and a height of 4 cm.
- A circle with a radius of 5.6 cm.
- A square with a side length 3 cm

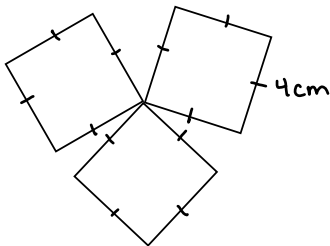
3. Calculate the surface area of the following composite shapes.



Surface Area: _____



Surface Area: _____

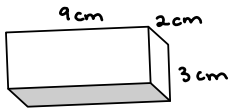


Surface Area: _____

WS 10-1-6 "SURFACE AREA REVIEW"

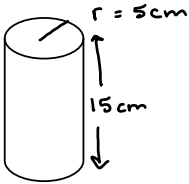
Name: _____ Block: _____

4. Name each shape and then calculate the surface area.



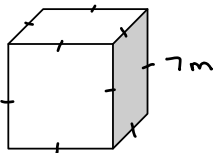
Shape Name: _____

Surface Area: _____



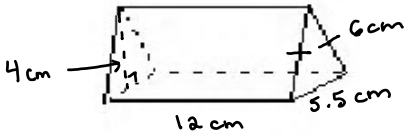
Shape Name: _____

Surface Area: _____



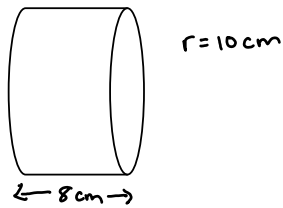
Shape Name: _____

Surface Area: _____



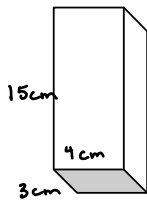
Shape Name: _____

Surface Area: _____



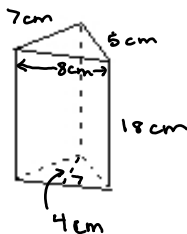
Shape Name: _____

Surface Area: _____



Shape Name: _____

Surface Area: _____



Shape Name: _____

Surface Area: _____

WS 10-1-7 "SURFACE AREA OF RIGHT PYRAMIDS & CONES"

Name: _____ Block: _____

Please neatly complete all work on this worksheet, and clearly identify your final answer. Good luck!

1. Determine the **lateral area** to the nearest square unit. (b = base length, s = slant height)

a. Square Pyramid

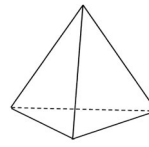
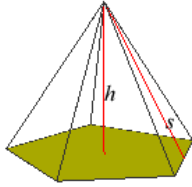
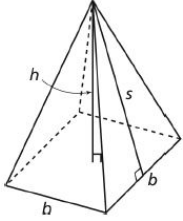
$b = 4$ in. $s = 10$ in.

b. Regular Pentagonal Pyramid

$b = 5$ cm $s = 12$ cm

c. Regular Tetrahedron

$b = 4$ mm $s = 7$ mm



2. Determine the surface area of each right pyramid in question 1, to the nearest square unit.

a. Square Pyramid

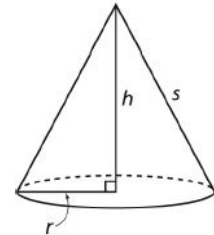
b. skip

c. Regular Tetrahedron

3. Determine the lateral area of each right cone to the nearest tenth of a square centimetre. (r = base radius, s = slant height)

a. $r = 3$ cm, $s = 12$ cm

b. $r = 5.2$ cm, $s = 7.8$ cm



4. Determine the surface area of each right cone in question 3.

a.

b.

5. Sketch then calculate the surface area of each object to the nearest square inch.

a. Right square pyramid

$b = 10$ in. $h = 16$ in.

b. Right cone

$r = 5$ in. $h = 15$ in.

WS 10-1-7 "SURFACE AREA OF RIGHT PYRAMIDS & CONES"

Name: _____ Block: _____

6. The Great Pyramid at Giza has a square base with side length 755 ft. and an original height of 481 ft.
- a. Sketch the pyramid and label the height and side length of the base.
 - b. Determine its original lateral area to the nearest square foot.

7. Jonah built a cone-shaped volcano for science class. The volcano has a base diameter of 28 cm and a slant height of 34 cm.

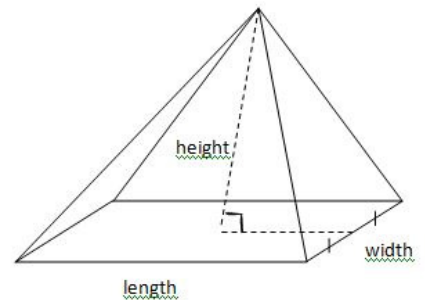
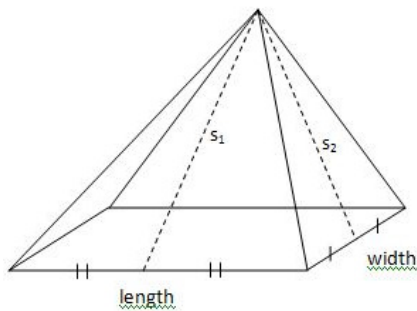
- a. What is the lateral area of the volcano to the nearest tenth of a square centimetre?

- b. The paint for the volcano's surface costs \$1.50/jar, and one jar of paint will cover 200 cm^2 . How much will Johan have to spend on paint?

8. Determine the surface area of each right rectangular pyramid to the nearest tenth.

- a. length = 4.6 cm, width = 2.1 cm
 $s_1 = 6.2 \text{ cm}$, $s_2 = 4.8 \text{ cm}$

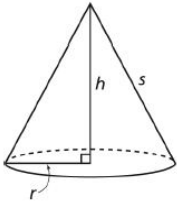
- b. length = 6.5 cm, width = 1.9 cm
height = 12.3 cm



WS 10-1-7 "SURFACE AREA OF RIGHT PYRAMIDS & CONES"

Name: _____ Block: _____

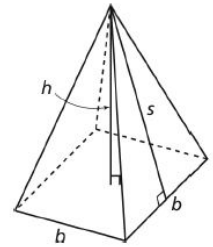
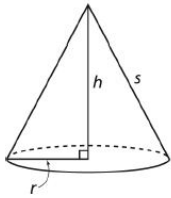
9. A farmer unloaded grain onto a tarp on the ground. The grain formed a cone-shaped pile that had a diameter of 14 ft. and a height of 10 ft. Determine the surface area of the exposed grain to the nearest square foot.



10. For each object, its surface area (SA) and some dimensions are given. Calculate the dimension indicated by the variable to two decimal places.

a. Right Cone: $SA = 4087\text{cm}^2$, $r = 18\text{cm}$, **find s**

b. Right Square Pyramid: $SA = 83.5\text{m}^2$, $b = 4.6\text{m}$, **find s**



11. A right pyramid has a surface area of 241 cm^2 . A right cone has a base radius of 5 cm. The cone and pyramid have equal surface areas. What is the height of the cone to the nearest tenth of a centimetre?

WS 10-1-8 "VOLUME OF RIGHT PYRAMIDS, CONES, PRISMS & CYLINDERS"

Name: _____ Block: _____

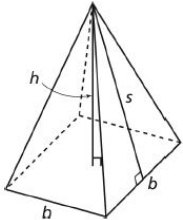
Please neatly complete all work on this worksheet, and clearly identify your final answer. Have fun!

1. Calculate the volume to the nearest cubic unit. (b = base length, s = slant height)

HINT: You must find the height of the pyramid before you can calculate volume!

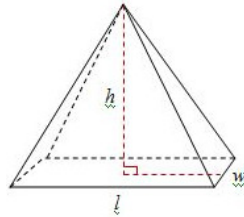
a. Square Pyramid

$b = 4$ in. $s = 10$ in.



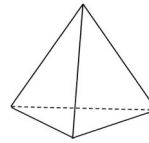
b. Right Rectangular Pyramid

$w = 5$ cm $l = 12$ cm $s = 10$



c. Regular Tetrahedron

$b = 4$ mm $s = 7$ mm $h = 6$ mm



2. Sketch and find the volume of a right prism with the same base and height as each right pyramid in question 1, to the nearest cubic unit.

a.

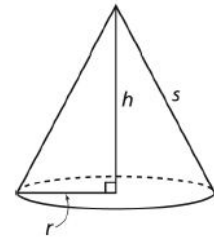
b.

c.

3. Determine the volume of each right cone to the nearest tenth of a cubic centimetre. (r = base radius, h = height, s = slant height)

a. $r = 3$ cm, $h = 12$ cm

b. $r = 5.2$ cm, $s = 7.8$ cm



4. Sketch and find the volume of a cylinder with the same base and height as each cone in question 3.

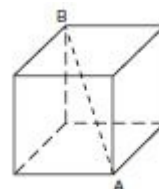
a.

b.

WS 10-1-8 "VOLUME OF RIGHT PYRAMIDS, CONES, PRISMS & CYLINDERS"

Name: _____ Block: _____

5. Sketch then calculate the volume of each object to the nearest cubic inch.
- a. Right rectangular prism
l = 10 in. w = 4 in. h = 16 in.
 - b. Right cone
r = 5 in. s = 12 in.
6. A stone monument has the shape of a square pyramid. Its slant height is 1.8 m and the side length of its base is 0.7 m.
- a. Sketch the pyramid and label the height and side length of the base.
 - b. Calculate its volume to the nearest tenth of a cubic metre.
7. An ice cream shop sells a waffle cone with a height of 6 in. and a base diameter of 2 in.
- a. If ice cream is level with the top, how much ice cream can the cone hold to the nearest cubic in.?
 - b. One cubic inch of soft ice cream costs \$0.50, one cone costs \$0.25, and the whipped topping and sprinkles cost \$0.20 for one cone. How much will it cost to produce one waffle cone dessert?
8. A cube has side length 4 cm.
- a. Calculate the volume of the cube.
 - b. Calculate the length of the diagonal AB.
HINT: Find the length of the diagonal of the base



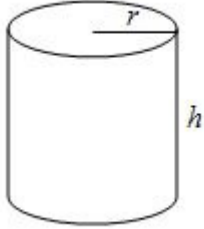
WS 10-1-8 "VOLUME OF RIGHT PYRAMIDS, CONES, PRISMS & CYLINDERS"

Name: _____ Block: _____

9. For each object, calculate the dimension indicated by the variable to two decimal places.

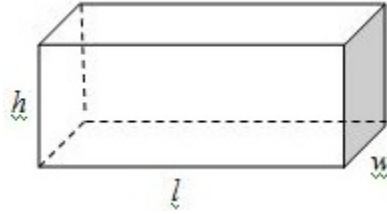
a. Right Cylinder:

$$V = 2080\text{cm}^3, h = 18\text{cm}, \text{ find } r$$



b. Right Rectangular Prism:

$$V = 268.5\text{m}^3, l = 8.6\text{m}, w = 3.2\text{m}, \text{ find } h$$



10. A cylinder has a volume of 248 cm^3 . Its height is 4 times greater than its radius. What is the height of the cylinder?

11. A water tank has the shape of a right cone. The tank collects the water run-off for a parking garage. The cone has a base diameter of 7.0 m and a height of 3.25 m. What is the capacity of this tank to the nearest tenth of a kilolitre? ($1\text{ m}^3 = 1\text{ kL}$)

12. A right square pyramid has a volume of 320 cubic yards. The base has a side length of 8 yd. Determine the slant height of the pyramid to the nearest yard.

WS 10-1-9 "SURFACE AREA & VOLUME OF A SPHERE"

Name: _____ Block: _____

Please neatly complete all work on this worksheet, and clearly identify your final answer. Enjoy!

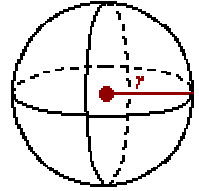
1. Determine the surface area and volume of each sphere to the nearest tenth.

a. $r = 4$ cm

SA = _____ V = _____

b. $r = 3.5$ m

SA = _____ V = _____



c. $r = 8$ ft.

SA = _____ V = _____

d. $r = 3$ in.

SA = _____ V = _____

2. Determine the surface area and volume of each hemisphere to the nearest whole unit.

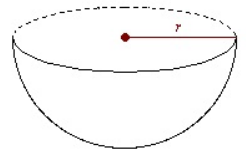
You won't be given these formulae on a test; you will need to derive them from the SA & V of a sphere!

a. $r = 3$ m

SA = _____ V = _____

b. diameter = 10 yd.

SA = _____ V = _____



3. The surface area of a tennis ball is approximately 127 cm^2 . What is the radius of the tennis ball to the nearest tenth of a centimetre?

WS 10-1-9 "SURFACE AREA & VOLUME OF A SPHERE"

Name: _____ Block: _____

4. A sphere has a surface area of 864 square inches. What is the diameter of the sphere to the nearest tenth of an inch?

5. A bowl approximates a hemisphere with diameter 24 cm.
 - a. What is the capacity of the bowl to the nearest tenth of a litre? ($1000 \text{ cm}^3 = 1 \text{ L}$)
 - b. One cup is 250 mL. How many cups of punch can the bowl hold?

6. The centre of a doughnut is removed and used to make a sphere of dough with diameter 2.5 cm. A batch of these spheres is to be covered in a sugar glaze. There is enough glaze to cover an area of 4710 cm^2 . How many doughnut holes can be glazed?

7. A hemisphere has a circumference of 47.1 m. Find the surface area and volume of the hemisphere to the nearest tenth of a unit.

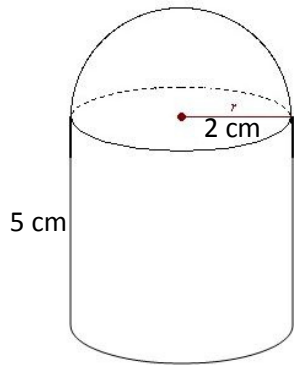
8. A pail of ice cream is cylindrical with diameter 20 cm and height 40 cm. A scoop of ice cream is approximately a sphere with diameter 4 cm. How many full scoops of ice cream will you get from the pail?

WS 10-1-10 "COMPOSITE 3-D OBJECTS"

Name: _____ Block: _____

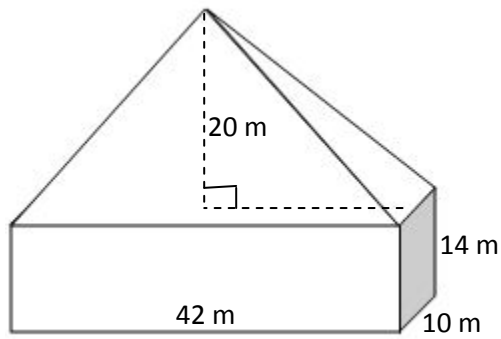
Please neatly complete all work on this worksheet, and clearly identify your final answer.

1. Calculate the surface area & volume to the nearest hundredth for the following composite objects.



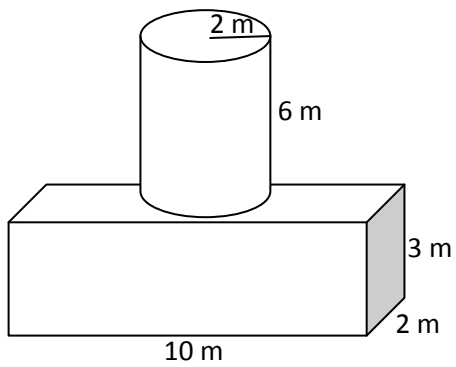
SA = _____

V = _____



SA = _____

V = _____

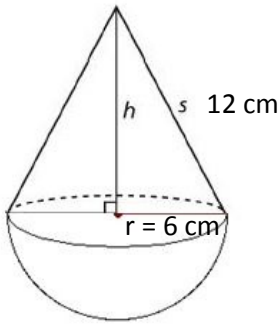


SA = _____

V = _____

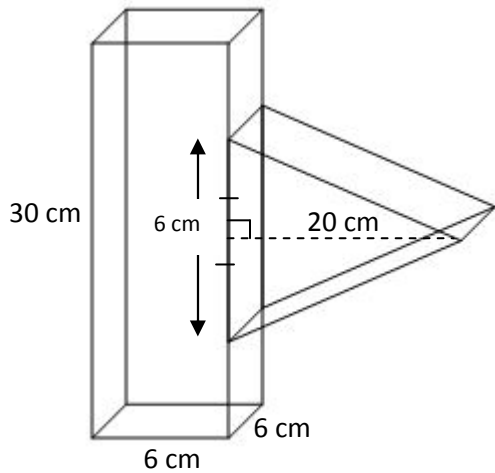
WS 10-1-10 "COMPOSITE 3-D OBJECTS"

Name: _____ Block: _____



SA = _____

V = _____



SA = _____

V = _____

2. A solid sphere just fits inside a cube that has an edge length equal to the diameter of the sphere. The edge length of the cube is 4.2 m. Find the volume of air in the cube to the nearest hundredth.

3. A rocket has a cylindrical body and a cone shaped nose. The cylinder is 38 cm long with a radius of 4 cm. The cone has a slant height of 10 cm and has the same radius as the cylinder.

a. Sketch and label the rocket.

b. Find the surface area to the nearest tenth.

WS 10-1-10 "COMPOSITE 3-D OBJECTS"

Name: _____ Block: _____

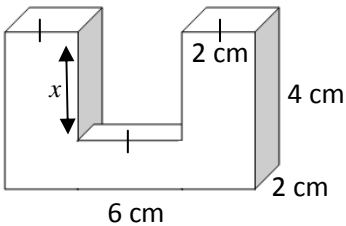
c. Find the volume to the nearest tenth.

d. One third of the interior space of the rocket is used for fuel storage. Determine how much fuel the rocket can hold.

4. A cylinder with a diameter of 8 cm and a height of 12 cm is half full of water. A sphere with a diameter of 4 cm is dropped into the cylinder. Determine how far the water level will rise once the sphere is completely under the water.

5. A ball has a circumference of 200 cm. Find the volume of the smallest cube that will hold the ball.

6. Given the volume, calculate the length of x .



Volume = 36 cm^3 $x =$ _____