

NAME: _____

10.4 Volumes of Pyramids and Cones

Volume of a Pyramid

B =

Volume of a Cone

h =

Ex 1: A pyramid has volume of 30 units^3 . What's the volume of prism with the same base area and height?

Ex 2: A cylinder has volume of 30 units^3 . What's the volume of a cone with the same base area and height?

Find the volume of each.

Ex 3

ex 4:

ex 5: A square pyramid has an volume of 32 m^3 . The height of the pyramid is 6 m, what is the length of the sides of the base?

ex 6: The volume of a cone with height 18 inches is $486\pi \text{ in}^3$. What is the diameter of the circular base?

When Mr. Brust worked at K-town High School (that's right), he used to loving wearing this Dunce Cap. One day Sully asked why he loved the Dunce Cap so much. He said it was a great place to hide oreo cookies. If you considered an oreo a cylinder that was .5 cm tall with a 1 cm radius and the Dunce Cap had a radius of 10 cm and was 24 cm tall. How many Oreos could Mr. Brust keep on his head?

You try...find the volume to the nearest whole.

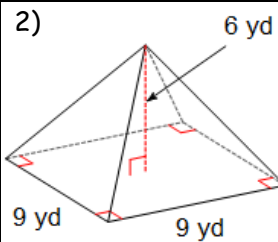
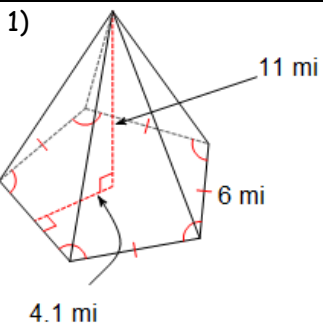
1)

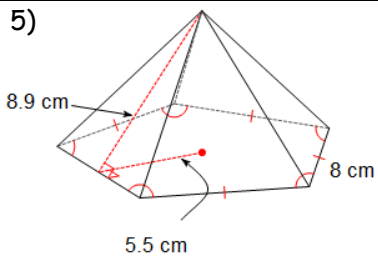
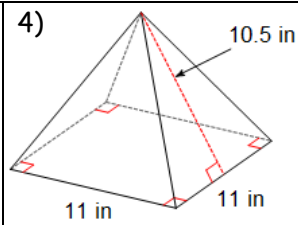
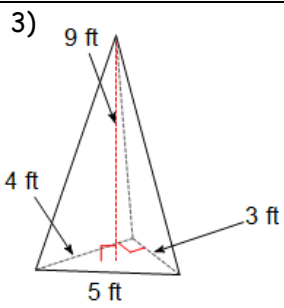
2)

Summary:

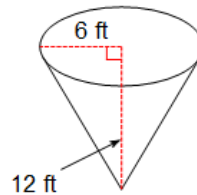
10.4 Practice Problems

Directions: Find the volume of each figure. Round to the nearest tenth if necessary.

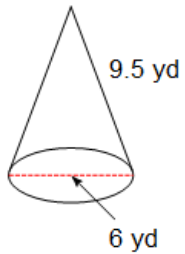




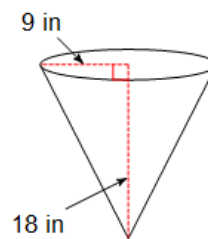
6) Round to nearest tenth and leave in terms of π .



7) Round to nearest tenth and leave in terms of π .



8) Round to nearest tenth and leave in terms of π .



Directions: Find the missing length.

9) The volume of a cone is 21π and has a height of 7. What is the radius of the cone?

10) The volume of a square pyramid is 2048 and has a height of 24. What is the length of one side of the base?

Algebra Review

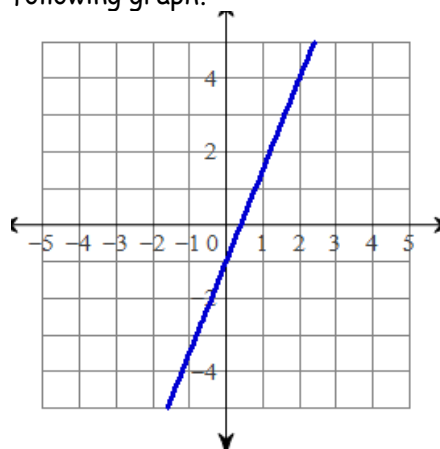
Solve:

$$-39 - 3n < 3(5 + 5n)$$

Solve:

$$7 + 2(4 + 4x) < 15 + 8x$$

Write the equation of the line for the following graph.



Factor Completely:

$$45v^2 - 20$$

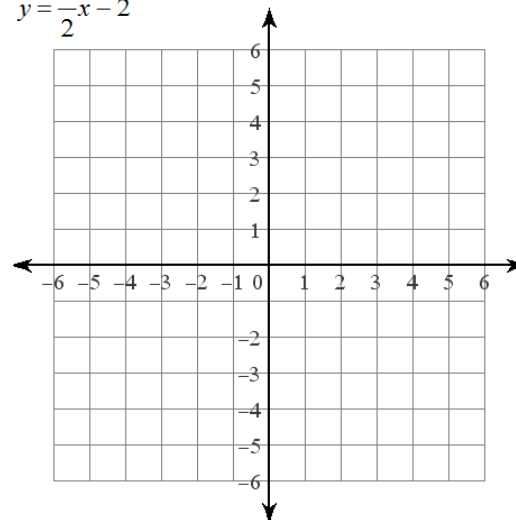
Factor Completely:

$$x^2 - 4$$

Solve by graphing:

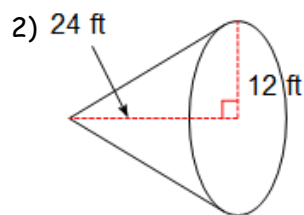
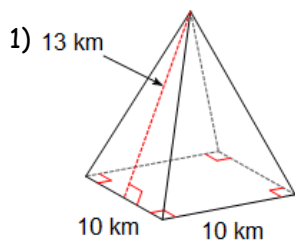
$$y = \frac{3}{2}x - 4$$

$$y = \frac{1}{2}x - 2$$

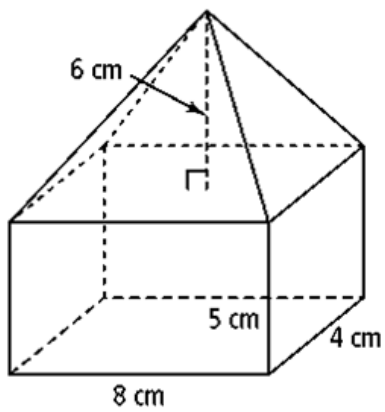


10.4 APPLICATION and EXTENSION

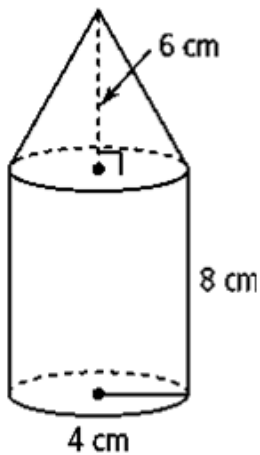
Directions: Find the volume.



3) Draw the two composite shapes then find the volume.



4) Draw the two composite shapes then find the volume.



5) Being a huge fan of oddly shaped buildings and opera, Mr. Kelly loves the Pyramid of Peace in Kazakhstan. During the opera, while eating popcorn, Mr. Kelly wondered how much popcorn could fit in the entire building. He found that square pyramid had bases sides of 62 meters which was the height as well.

How much popcorn could fit into the Pyramid of Peace?

If Mr. Kelly was eating popcorn out of a bucket (cylinder) with radius .1 m and .25 m tall, how many buckets of popcorn would fit into the Pyramid of Peace?

6) Mr. Brust's summer home is getting a bit full stuff that he has collected in his time in DoDDS. His wife suggests that they turn the lookout tower into a storage facility for Mr, Brust's Hello Kitty lunchbox collection. He knows the tower is essentially a cylinder with a cone on top. He knows from the top of the cone to the floor of the cylinder is 50 feet, that the diameter of the cylinder/cone is 30 feet and that the cylinder is 35 feet tall.

What is the storage space available for Mr. Brust?

If the average Hello Kitty lunchbox is a rectangular prism that has dimensions 1 foot by .5 feet by .75 feet, how many Hello Kitty lunchboxes will Mr. Brust be able to fit in the watch tower?

