<u>Warm-Up</u>

0:00:00
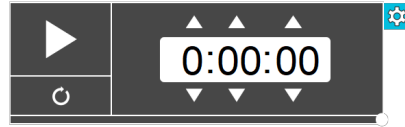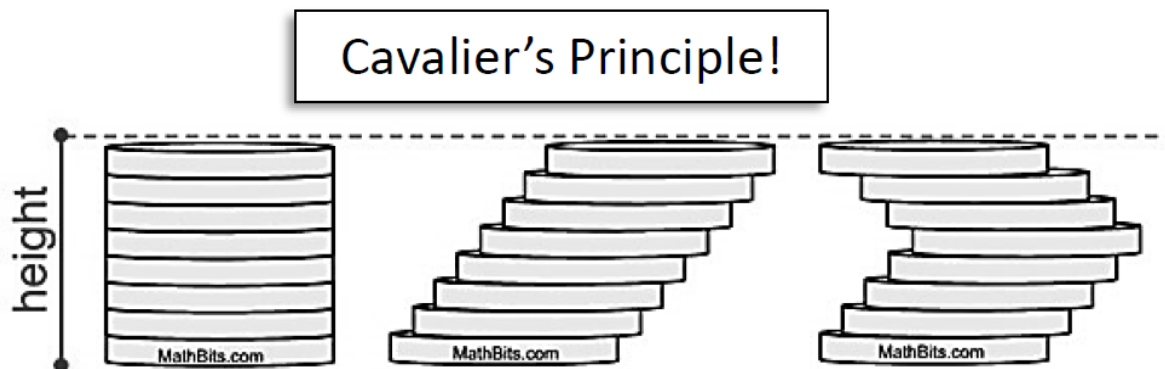
1. Put your phones away.

2. Look over your test from yesterday and ask any questions. You guys did great!!

What am I learning today?

Learning Objective 4C.1

How to calculate the volume of a figure.

- **Volume** – Calculates the _____ capacity _____ of an object (how much stuff can it hold)

Cavalier's Principle!

height

MathBits.com   MathBits.com   MathBits.com

same height, same amount of pieces, pieces are the same size, cross sections are parallel = same volume!

- **Prism** – A solid object with two identical ends and flat sides
- **Pyramid** – Has *1/3* the volume of a prism
- **Cylinder** – A solid object with two identical circles and smooth sides
- **Cone** – Has *1/3* the volume of a cylinder
- **Sphere** – Calculates the volume of a 3D circle

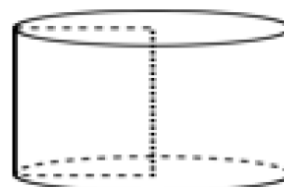Prisms/Cylinders → Volume = (Base area)*(height)

Specific Formulas .
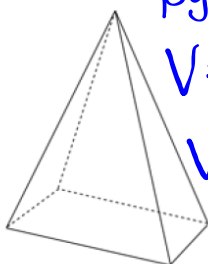
rectangular prism
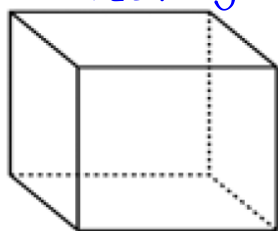
$V = Bh$

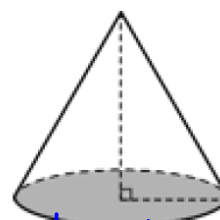$V = (LW)h$

cylinder

$V = Bh$

$V = (\pi r^2)h$

rectangular pyramid

$V = \frac{1}{3}Bh$

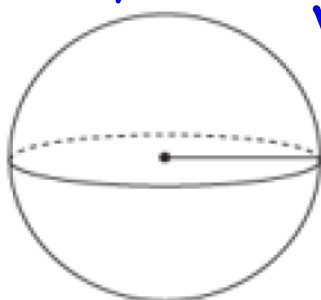$V = \frac{1}{3}(LW)h$

cone

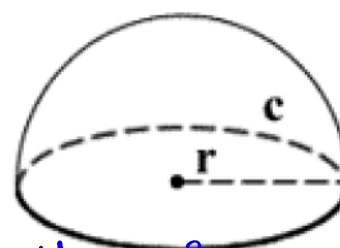$V = \frac{1}{3}Bh$

$V = \frac{1}{3}(\pi r^2)h$

Specific Formulas
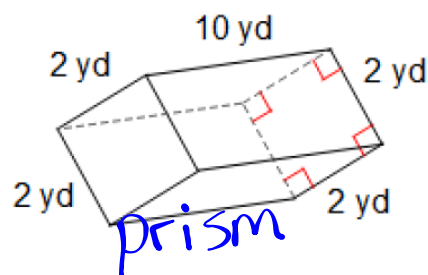
sphere

$V = \frac{4}{3}\pi r^3$

Hemisphere

$V = \dfrac{\frac{4}{3}\pi r^3}{2}$

1. Find the volume of the figure.

$V = (LW)h$

$V = (2 \cdot 2)10$

$V = 40 \text{ yds}^3$

10 yd

2 yd   2 yd

2 yd   2 yd

prism

2. What is the volume of a square based pyramid with a base side length of 16 meters and a height of 15 meters?

$V = \frac{1}{3}(LW)h$

$= \frac{1}{3}(16 \cdot 16)15 \quad = 1280 \text{ m}^3$

3. A fire extinguisher has a radius of 4 inches and is 12 inches high. How much cubic inches of fluid can it hold?

$V = (\pi r^2)h$

$= (\pi(4)^2)12 \approx 603.19 \text{ in}^3$

4. A soup can has a diameter of 8 cm and height of 10.5 cm. How much soup can it hold?

$V = (\pi r^2)h$

$= (\pi(4)^2)10.5 \approx 527.79 \text{ cm}^3$

5. If a sphere has a radius of 3 cm and a new sphere's radius is tripled. What would the new volume be of the new sphere?

$3 \cdot 3 = 9$ NEW

$V = \frac{4}{3}\pi (9)^3 \approx 3053.63 \, cm^3$

6. If a ice cream cone has a diameter of 1 inch and is 3 inches long. How much ice cream can it hold?

$V = \frac{1}{3}(\pi r^2) h$

$V = \frac{1}{3}(\pi (0.5)^2) 3$

$\approx 0.79 \, in^3$

7. If a cylinder has a base area of 144π ft² and a height of 3 ft. What is the volume of the figure?

$V = Bh$

$V = (144\pi) 3 \approx 1357.17 \, ft^3$

8. If a prism has a base area of $80 \, cm^2$ and a height of 2.89 cm. What is the volume of the figure?

$V = Bh$

$= (80) 2.89 \approx 231.2 \, cm^3$

Classwork:

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▶            ▲  ▲  ▲
             0:00:00
↻            ▼  ▼  ▼
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Complete the classwork about volume.
SHOW ALL WORK!

HW: Finish your classwork and EOC Review
#8 & #9

What am I going to do today?
● Grade and discuss Warm-Up
● Take notes on bisecting angles and line
  segments using constructions
● Practice bisecting angles and line segments
  using constructions

What will I do to show that I have learned it?

I can use a compass and steps to create accurate geometric constructions.

http://www.mathopenref.com/tocs/constructionstoc.html

<u>Classwork</u>:

0:10:00
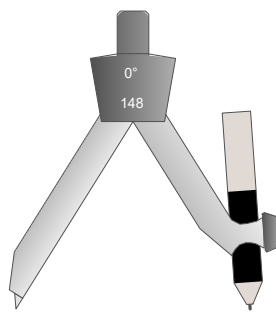
Complete the classwork about copying an angle and copying a line segment.

<u>HW</u>: Watch the construction videos to learn the steps.