

Volume of a Cone, Cylinder, & Sphere

Webquest

Score (/) Name: _____

Volume of a Cone, Cylinder, & Sphere Webquest


Directions: You will need to answer the questions on cone, cylinder, and sphere by going to the following website:
<https://www.exploremathindemand.com/volume-cone-cylinder-sphere>

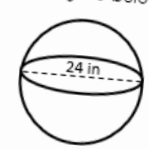
- 1.) What is a three-dimensional object?
- 2.) What is volume?

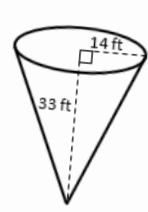
1.) Match each vocabulary word with its definition:

1.) _____ Volume	a.) A 3-dimensional object that occupies space.
2.) _____ Cone	b.) The distance from a point on the surface of a circle to the center of the circle.
3.) _____ Sphere	c.) A 3-dimensional object that is round like a ball and all points on the surface are equidistant from the center.
4.) _____ Radius	d.) A line segment that passes through the center of a circle to the other side of the circle.
5.) _____ Diameter	e.) A line segment that connects two points on a circle.

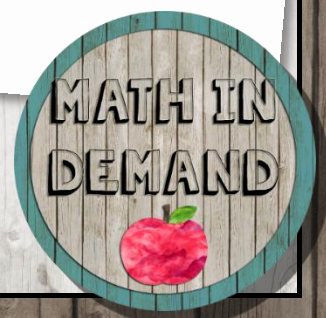
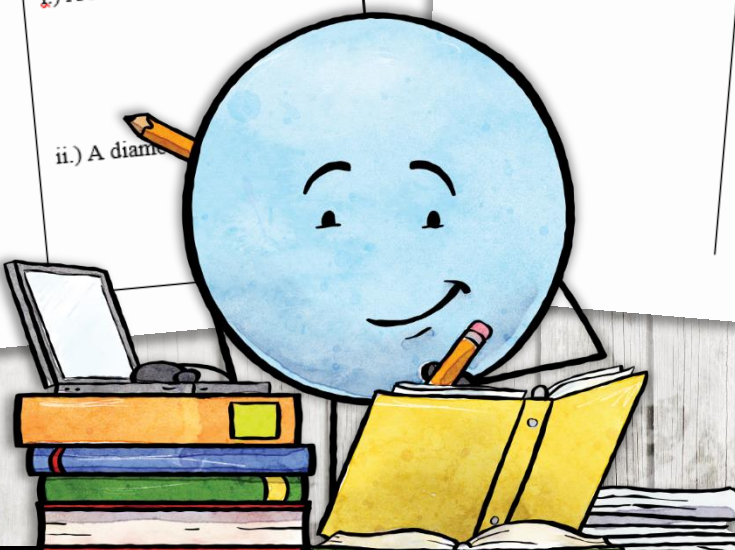
2.) Calculate the volume of each figure below:

a.) 

b.) 

c.) 

TECHNOLOGY



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Teacher Notes



- Students will need access to a device.
- After students have completed the webquest, there is a quiz. I have provided 2 ways that you can give the quiz:

1.) The quiz is online but students would still need to fill out page 7 with their answers OR

2.) You can print page 13 which has the quiz on the paper.

- I like to print pages 4 - 7 back to back and stapled (I use the 1st option for the quiz).

Please let me know if you have any other questions about the webquest!

You can email me at

mathindemand@hotmail.com.

Volume of a Cone, Cylinder, & Sphere

Webquest

Directions: You will need to answer the questions on volume of a cone, cylinder, and sphere by going to the following website

<https://www.exploremathindemand.com/volume-cone-cylinder-and-sphere.html>

1.) What is a three-dimensional object?

2.) What is volume?

Problem #3

Cone

a.) Define **cone**:

b.) Draw and label a **cone** with:

i.) A radius and height

ii.) A diameter and height

Problem #4

Cylinder

a.) Define **cylinder**:

b.) Draw and label a **cylinder** with:

i.) A radius and height

ii.) A diameter and height

Problem #3

Cone

c.) Give a real-world example:

d.) List 3 characteristics:

- i.)
- ii.)
- iii.)

e.) Give the volume formula for a **cone**:

f.) Solve practice problem #1:

g.) Solve practice problem #2:

Problem #4

Cylinder

c.) Give a real-world example:

d.) List 3 characteristics:

- i.)
- ii.)
- iii.)

e.) Give the volume formula for a **cylinder**:

f.) Solve practice problem #1:

g.) Solve practice problem #2:

Problem #5

Sphere

a.) Define sphere:

b.) Draw and label a sphere with:

i.) A radius

ii.) A diameter

c.) Give a real-world example:

d.) List 3 characteristics:

i.)

ii.)

iii.)

e.) Give the volume formula for a sphere:

f.) Solve practice problem #1:

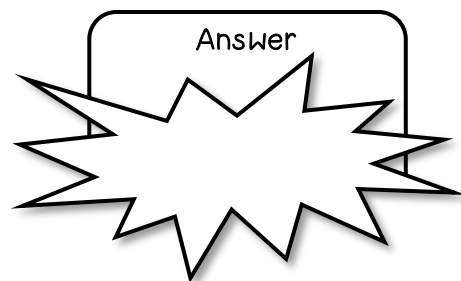
g.) Solve practice problem #2:

Volume of a Cone, Cylinder, and Sphere Quiz

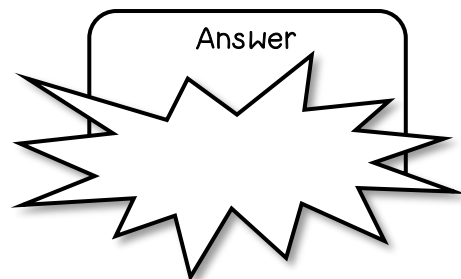
Matching:

1.) _____ 2.) _____ 3.) _____ 4.) _____ 5.) _____ 6.) _____

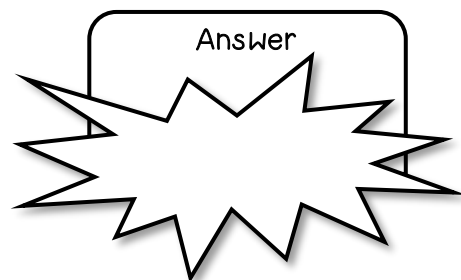
2.) Draw the figure below then calculate the volume:



3.) Draw the figure below then calculate the volume:



4.) Draw the figure below then calculate the volume:



Volume of a Cone, Cylinder, & Sphere

Webquest

Directions: You will need to answer the questions on volume of a cone, cylinder, and sphere by going to the following website

<https://www.exploremathindemand.com/volume-cone-cylinder-and-sphere.html>

1.) What is a three-dimensional object? A three-dimensional object differs from two-dimensional objects because they are not flat. They can be measured in three directions: height, width, and depth.

2.) What is volume? Volume is the amount of space that an object occupies. Volume is measured in cubic units. Some examples include cubic feet, cubic inches, cubic centimeters, and etc.

Problem #3

Cone

a.) Define cone:

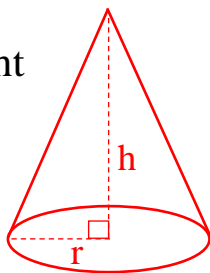
A cone is a three-dimensional object that has a circular base and comes to a point (has a single vertex).

b.) Draw and label a cone with:

i.) A radius and height

r - radius of the circle

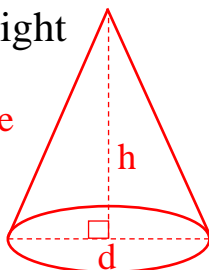
h - height of the cone



ii.) A diameter and height

d - diameter of the circle

h - height of the cone



Problem #4

Cylinder

a.) Define cylinder:

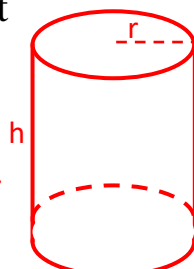
A cylinder is a three-dimensional object that has a curved surface inbetween two circular bases.

b.) Draw and label a cylinder with:

i.) A radius and height

r - radius of the circle

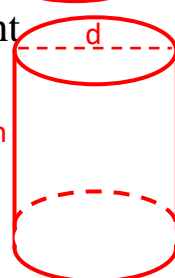
h - height of the cylinder



ii.) A diameter and height

d - diameter of the circle

h - height of the cylinder



Problem #3

Cone

c.) Give a real-world example:

Ice Cream Cone

d.) List 3 characteristics:

- i.) Circular base
- ii.) Single vertex
- iii.) Curved sides

e.) Give the volume formula for a **cone**:

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

f.) Solve practice problem #1:

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

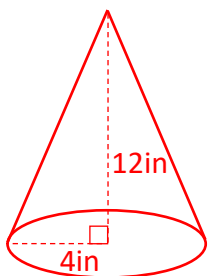
$$V = \frac{1}{3}\pi(4\text{in})^2(12\text{in})$$

$$V = \frac{1}{3}\pi(16\text{in}^2)(12\text{in})$$

$$V = \frac{1}{3}\pi(192\text{in}^3)$$

$$V = 64\pi \text{ in}^3$$

$$V \approx 201.1 \text{ in}^3$$



g.) Solve practice problem #2:

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

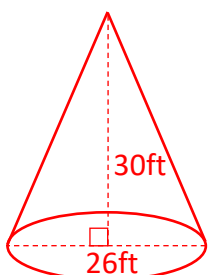
$$V = \frac{1}{3}\pi(13\text{ft})^2(30\text{ft})$$

$$V = \frac{1}{3}\pi(169\text{ft}^2)(30\text{ft})$$

$$V = \frac{1}{3}\pi(5,070\text{ft}^3)$$

$$V = 1,690\pi \text{ ft}^3$$

$$V \approx 5,309.3 \text{ ft}^3$$



Problem #4

Cylinder

c.) Give a real-world example:

A can of soda

d.) List 3 characteristics:

- i.) Circular bases are parallel
- ii.) Circular bases are congruent
- iii.) Curved surface

e.) Give the volume formula for a **cylinder**:

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

f.) Solve practice problem #1:

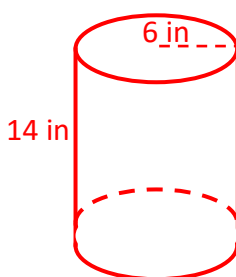
$$V = \pi r^2 h$$

$$V = \pi(6 \text{ in})^2(14 \text{ in})$$

$$V = \pi(36 \text{ in}^2)(14 \text{ in})$$

$$V = \pi(504 \text{ in}^3)$$

$$V \approx 1,583.4 \text{ in}^3$$



g.) Solve practice problem #2:

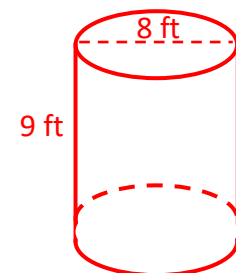
$$V = \pi r^2 h$$

$$V = \pi(4 \text{ ft})^2(9 \text{ ft})$$

$$V = \pi(16 \text{ ft}^2)(9 \text{ ft})$$

$$V = \pi(144 \text{ ft}^3)$$

$$V \approx 452.4 \text{ ft}^3$$



Problem #5

Sphere

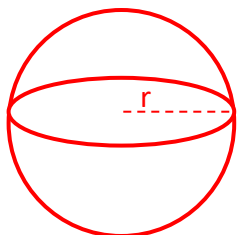
a.) Define **sphere**:

A sphere is a three-dimensional object that is round like a ball and every point on the surface is equidistant (equal distance) from the center.

b.) Draw and label a **sphere** with:

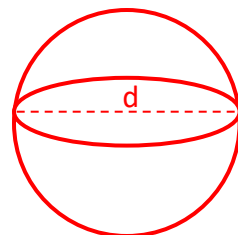
i.) A radius

r - radius of
the circle



ii.) A diameter

d - diameter of
the circle



c.) Give a real-world example:

A basketball

d.) List 3 characteristics:

i.) One curved surface; round

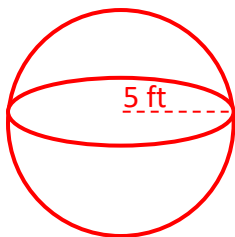
ii.) Perfectly symmetrical

iii.) All points from the surface to the center are equal in length

e.) Give the volume formula for a **sphere**:

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

f.) Solve practice problem #1:



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

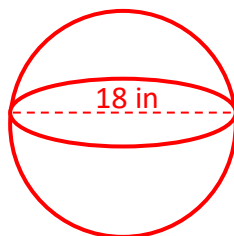
$$V = \frac{4}{3}\pi(5 \text{ ft})^3$$

$$V = \frac{4}{3}\pi(125 \text{ ft}^3)$$

$$V = \frac{500}{3}\pi \text{ ft}^3$$

$$V \approx 523.6 \text{ ft}^3$$

g.) Solve practice problem #2:



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

$$V = \frac{4}{3}\pi(9 \text{ in})^3$$

$$V = \frac{4}{3}\pi(729 \text{ in}^3)$$

$$V = \frac{2,916}{3}\pi \text{ in}^3$$

$$V = 972\pi \text{ in}^3$$

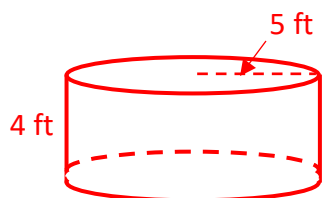
$$V \approx 3,053.6 \text{ in}^3$$

Volume of a Cone, Cylinder, and Sphere Quiz

Matching:

1.) D 2.) C 3.) B 4.) F 5.) A 6.) E

2.) Draw the figure below then calculate the volume:



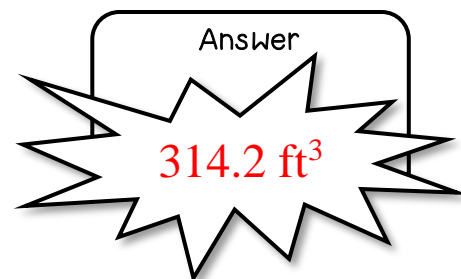
$$V = \pi r^2 h$$

$$V = \pi(5 \text{ ft})^2(4 \text{ ft})$$

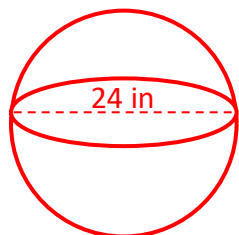
$$V = \pi(25 \text{ ft}^2)(4 \text{ ft})$$

$$V = \pi(100 \text{ ft}^3)$$

$$V \approx 314.2 \text{ ft}^3$$



3.) Draw the figure below then calculate the volume:



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

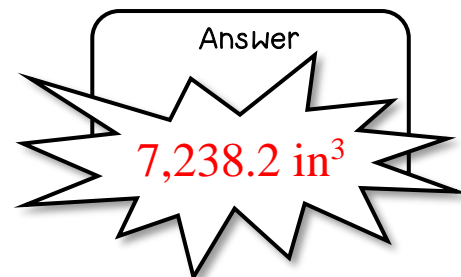
$$V = \frac{4}{3}\pi(12 \text{ in})^3$$

$$V = \frac{4}{3}\pi(1,728 \text{ in}^3)$$

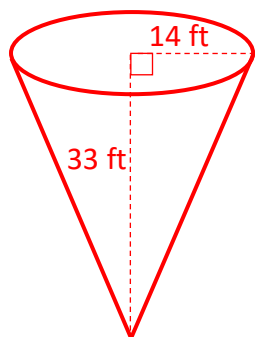
$$V = \frac{6,912}{3}\pi \text{ in}^3$$

$$V = 2,304\pi \text{ in}^3$$

$$V \approx 7,238.2 \text{ in}^3$$



4.) Draw the figure below then calculate the volume:



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

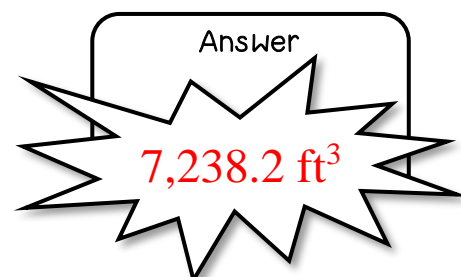
$$V = \frac{1}{3}\pi(14 \text{ ft})^2(33 \text{ ft})$$

$$V = \frac{1}{3}\pi(196 \text{ ft}^2)(33 \text{ ft})$$

$$V = \frac{1}{3}\pi(6,468 \text{ ft}^3)$$

$$V = 2,156\pi \text{ ft}^3$$

$$V \approx 6,773.3 \text{ ft}^3$$



Another Option for Quiz

I have provided two ways that you can give the quiz:

1.) You can have students click on the quiz from their devices then fill out page 7

OR

2.) You can give them the page below (page 13). The problems are given on the paper instead of online.

Score (____/____)

Name: _____

Date: _____

Volume of a Cone, Cylinder, and Sphere Quiz

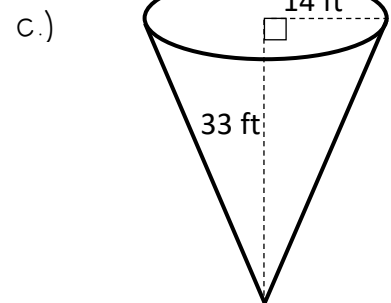
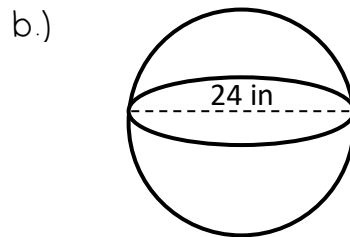
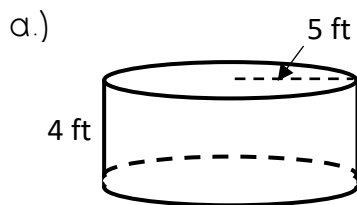
Period: _____

Directions: Solve the following problems on volume. Make sure to show all your work to receive credit.

1.) Match each vocabulary word with its definition:

- | | |
|--------------------|--|
| 1.) _____ Volume | a.) A 3-dimensional object that has a curved surface inbetween two circular bases. |
| 2.) _____ Cone | b.) The distance from a point on the surface of a circle to the center of the circle. |
| 3.) _____ Radius | c.) A 3-dimensional object that has a circular base and comes to a point. |
| 4.) _____ Sphere | d.) The amount of space that an object occupies. |
| 5.) _____ Cylinder | e.) The distance from a point on the surface of a circle that passes through the center to the other side of the circle. |
| 6.) _____ Diameter | f.) A 3-dimensional object that is round like a ball and all points on the surface is equidistant from the center. |

2.) Calculate the volume of each figure below:



Score (____/____)

ANSWER KEY

Name: _____

Date: _____

Volume of a Cone, Cylinder, and Sphere Quiz

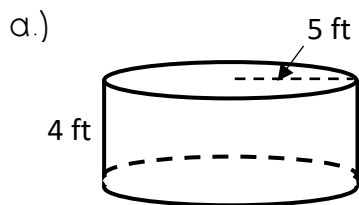
Period: _____

Directions: Solve the following problems on volume. Make sure to show all your work to receive credit.

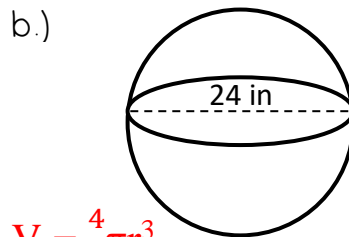
1.) Match each vocabulary word with its definition:

- | | |
|-----------------------|--|
| 1.) <u>D</u> Volume | a.) A 3-dimensional object that has a curved surface inbetween two circular bases. |
| 2.) <u>C</u> Cone | b.) The distance from a point on the surface of a circle to the center of the circle. |
| 3.) <u>B</u> Radius | c.) A 3-dimensional object that has a circular base and comes to a point. |
| 4.) <u>F</u> Sphere | d.) The amount of space that an object occupies. |
| 5.) <u>A</u> Cylinder | e.) The distance from a point on the surface of a circle that passes through the center to the other side of the circle. |
| 6.) <u>E</u> Diameter | f.) A 3-dimensional object that is round like a ball and all points on the surface is equidistant from the center. |

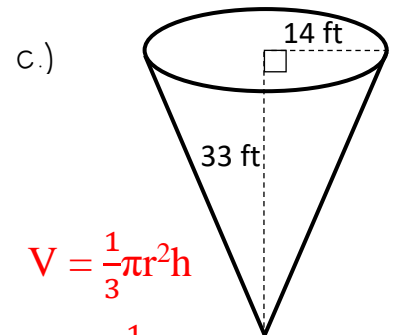
2.) Calculate the volume of each figure below:



$$\begin{aligned}
 V &= \pi r^2 h \\
 V &= \pi (5 \text{ ft})^2 (4 \text{ ft}) \\
 V &= \pi (25 \text{ ft}^2) (4 \text{ ft}) \\
 V &= \pi (100 \text{ ft}^3) \\
 V &\approx 314.2 \text{ ft}^3
 \end{aligned}$$



$$\begin{aligned}
 V &= \frac{4}{3} \pi r^3 \\
 V &= \frac{4}{3} \pi (12 \text{ in})^3 \\
 V &= \frac{4}{3} \pi (1,728 \text{ in}^3) \\
 V &= \frac{6,912}{3} \pi \text{ in}^3 \\
 V &= 2,304 \pi \text{ in}^3 \\
 V &\approx 7,238.2 \text{ in}^3
 \end{aligned}$$



$$\begin{aligned}
 V &= \frac{1}{3} \pi r^2 h \\
 V &= \frac{1}{3} \pi (14 \text{ ft})^2 (33 \text{ ft}) \\
 V &= \frac{1}{3} \pi (196 \text{ ft}^2) (33 \text{ ft}) \\
 V &= \frac{1}{3} \pi (6,468 \text{ ft}^3) \\
 V &= 2,156 \pi \text{ ft}^3 \\
 V &\approx 6,773.3 \text{ ft}^3
 \end{aligned}$$

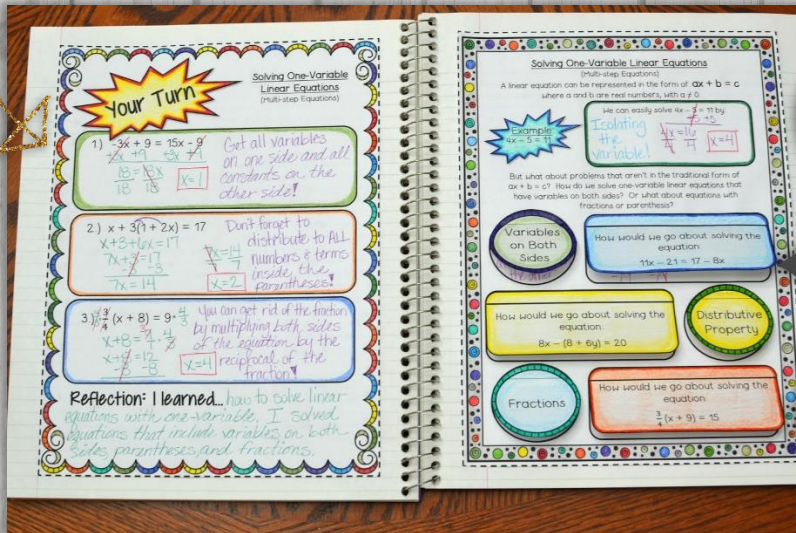
If you like my resource, please check out my other resources!

(Click on the pictures)

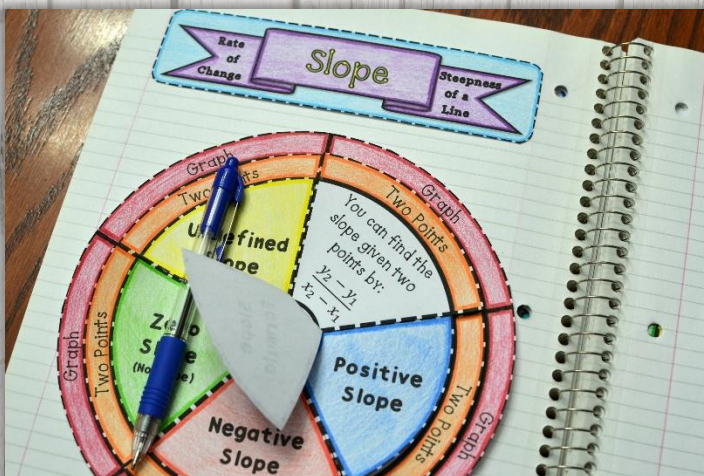
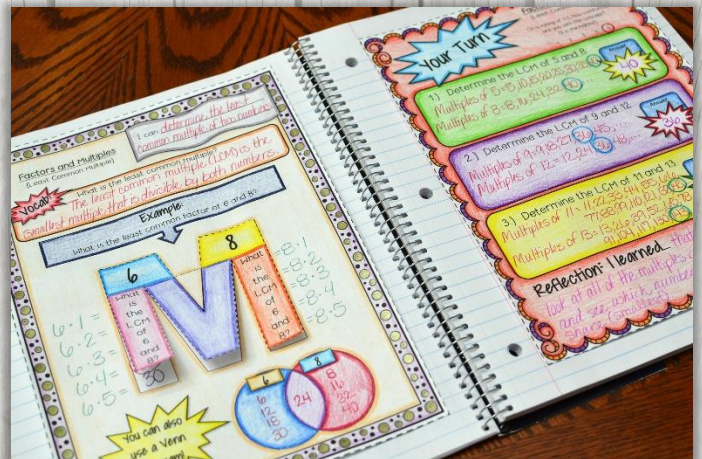
You'll love them!!!



Algebra Interactive Notebook



Pre-Algebra Interactive Notebook



Slope Wheel Foldable

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