

# Thank You



for downloading this product! I truly hope that you & your students *enjoy* using this in your classroom & find it *helpful!*

If you have any questions, *please* feel free to *email me* at [clever.clover17@gmail.com](mailto:clever.clover17@gmail.com)

## Let's Connect



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This resource can be used for practice with calculating and comparing the volume of cylinders, cones and spheres. Students will explore, discover and discuss the relationship between all three shapes.

The same radius and height are used to determine the volume for a cylinder, cone and sphere. After completing the calculations, comparisons can be made between the volume of the shapes. Two discoveries may be made.

- 1) One comparison students may make is between the shapes. If the shapes have the same height and radius, the cylinder will be three times the cone's volume. The sphere's volume will be twice the cone's volume.
- 2) Students might also compare how the volume changed when the radius and height were doubled and tripled. For example, if the radius and height are doubled, the volume will be 8 times as large. If the radius and height tripled, the volume will be 27 times as large.

Practice with vocabulary is also important. Students will use a word bank to identify the correct geometry vocabulary word for ten definitions. Students can use a highlighter to find the vocabulary word in the word search. The ten words include:

- Volume
- Cylinder
- Cone
- Sphere
- Height
- Base
- Formula
- Net
- Solid
- Face

If you liked this, you'll *love* these:

### NUMBER SENSE

## RATIONAL NUMBERS TASKCARDS

Station 1: What are the integers that are rational numbers?  $\sqrt{3}$ ,  $\frac{1}{2}$ ,  $-\frac{3}{4}$ ,  $0$

Station 2: Classify all of the rational numbers.  $-\frac{2}{3}$ ,  $-\frac{1}{2}$ ,  $\frac{5}{8}$ ,  $0$ ,  $-\frac{2}{3}$ ,  $\sqrt{3}$ ,  $\frac{3}{5}$ ,  $0$

Station 3: What is the difference between a rational and an irrational number?

Station 4: Use the number line to plot  $\sqrt{2}$ .

Station 5: Use the number line to plot  $-\sqrt{2}$ .

Station 6: How do you know if a number is rational or irrational?

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### NUMBER SENSE

## RATIONAL AND IRRATIONAL NUMBER WORKSHEETS

Classifying Rational and Irrational Numbers

Check all the number sets that would apply for each number:

Number	Rational Numbers	Whole Numbers	Integers	Counting Numbers	Irrational Numbers
0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Rational & Irrational Numbers Vocabulary Practice

RATIONAL NUMBERS  
 TERMINATING DECIMALS  
 REPEATING DECIMALS  
 INTEGERS  
 SQUARE ROOT  
 COUNTING NUMBERS  
 IRRATIONAL NUMBERS  
 WHOLE NUMBERS  
 REAL NUMBERS

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### NUMBER SENSE

## Rational Numbers

## TERMINATING AND REPEATING DECIMALS WORKSHEETS

Terminating and Repeating Decimals

Explain how to change a fraction to a decimal.

A decimal that has a digit or digits that repeat without end is called a repeating decimal. It can be written as a fraction of integers.

A decimal that has a digit or digits that repeat a certain number of times and then ends is called a terminating decimal.

Change  $\frac{1}{2}$  to a decimal.

Change  $\frac{3}{4}$  to a decimal.

Is a repeating decimal a rational number? Explain.

Is a terminating decimal a rational number? Explain.

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### RATIOS & PROPORTIONS

## PERCENT APPLICATIONS GUIDED NOTES

Discount and Sale Price

Tax and Tip

Simple Interest

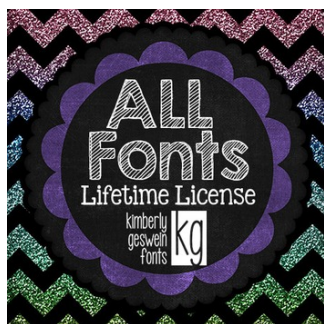
Commission

Percent Change

Percent Error

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*THANKS* to these creative people:

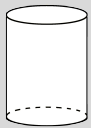
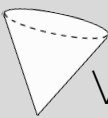



# Volume of Cylinders, Cones and Spheres Practice

Name: \_\_\_\_\_

Hour: \_\_\_\_\_

Directions: Calculate the volume of the cylinder, cone and sphere for the problems listed below. Label all of your answers with the appropriate units and show your work! Use 3.14 for  $\pi$ . Round your answers to the nearest tenth.

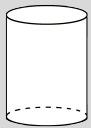
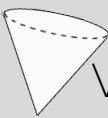

VOLUME PRACTICE	 Cylinder $V = \pi r^2 h$	 Cone $V = \frac{1}{3} \pi r^2 h$	 Sphere $V = \frac{4}{3} \pi r^3$
1) radius = 2 feet height = 4 feet	$V = \pi r^2 h$	$V = \frac{1}{3} \pi r^2 h$	$V = \frac{4}{3} \pi r^3$
2) radius = 4 feet height = 8 feet	$V = \pi r^2 h$	$V = \frac{1}{3} \pi r^2 h$	$V = \frac{4}{3} \pi r^3$
3) radius = 6 feet height = 12 feet	$V = \pi r^2 h$	$V = \frac{1}{3} \pi r^2 h$	$V = \frac{4}{3} \pi r^3$

Examine your answers for each problem. What conclusions can you make?

# Volume of Cylinders, Cones and Spheres Practice

Name: \_\_\_\_\_  
Hour: \_\_\_\_\_

Directions: Calculate the volume of the cylinder, cone and sphere for the problems listed below. Label all of your answers with the appropriate units and show your work! Use 3.14 for  $\pi$ . Round your answers to the nearest tenth.

VOLUME PRACTICE	 Cylinder $V = \pi r^2 h$	 Cone $V = \frac{1}{3} \pi r^2 h$	 Sphere $V = \frac{4}{3} \pi r^3$
1) radius = 2 feet height = 4 feet	$V = \pi r^2 h$ $V = \pi(2^2)4$ $V \approx 50.2 \text{ feet}^3$	$V = \frac{1}{3} \pi r^2 h$ $V = \frac{1}{3} \pi(2^2)4$ $V \approx 16.7 \text{ feet}^3$	$V = \frac{4}{3} \pi r^3$ $V = \frac{4}{3} \pi(2^3)$ $V \approx 33.5 \text{ feet}^3$
2) radius = 4 feet height = 8 feet	$V = \pi r^2 h$ $V = \pi(4^2)8$ $V \approx 401.9 \text{ feet}^3$	$V = \frac{1}{3} \pi r^2 h$ $V = \frac{1}{3} \pi(4^2)8$ $V \approx 134 \text{ feet}^3$	$V = \frac{4}{3} \pi r^3$ $V = \frac{4}{3} \pi(4^3)$ $V \approx 267.9 \text{ feet}^3$
3) radius = 6 feet height = 12 feet	$V = \pi r^2 h$ $V = \pi(6^2)12$ $V \approx 1,356.5 \text{ feet}^3$	$V = \frac{1}{3} \pi r^2 h$ $V = \frac{1}{3} \pi(6^2)12$ $V \approx 452.2 \text{ feet}^3$	$V = \frac{4}{3} \pi r^3$ $V = \frac{4}{3} \pi(6^3)$ $V \approx 904.3 \text{ feet}^3$

Examine your answers for each problem. What conclusions can you make?

One comparison students may make is between the shapes. If the shapes have the same height and radius, the cylinder will be three times the cone's volume. The sphere's volume will be twice the cone's volume. Another comparison might involve the increase in the radius, height and volume. For example, if the radius and height are doubled, the volume will be 8 times as large. If the radius and height tripled, the volume will be 27 times as large.

# Volume of Cylinders, Cones & Spheres Vocabulary

Name: \_\_\_\_\_

Hour: \_\_\_\_\_

**Directions:** Read the vocabulary definitions below. Use the word bank to select the correct word for each definition. Use a highlighter or marker to find the word in the puzzle.

BASE	HEIGHT	FACE	SOLID	FORMULA
CYLINDER	CONE	SPHERE	NET	VOLUME

- 1) A three-dimensional shape, such as a ball, whose surface consists of all the points that are a given distance from the center of the shape. \_\_\_\_\_
- 2) The amount of space, or the capacity, of a three-dimensional shape. \_\_\_\_\_
- 3) The bottom face of a three-dimensional shape. \_\_\_\_\_
- 4) A three-dimensional shape with a circular end and a pointed end. \_\_\_\_\_
- 5) A three-dimensional (3D) object. \_\_\_\_\_
- 6) A polygon that forms one of the flat surfaces of the some three-dimensional shapes. \_\_\_\_\_
- 7) A pattern that you can cut and fold to make a model of a solid shape. \_\_\_\_\_
- 8) A solid with two congruent circular bases that lie in parallel planes. \_\_\_\_\_
- 9) The length of a perpendicular line drawn from one vertex to the opposite side. \_\_\_\_\_
- 10) A group of mathematical symbols that express a relationship or that are used to solve a problem.  
\_\_\_\_\_

F	O	R	M	U	L	A	P	N	B	R	E	C	X	O	K	J	S	E	D	B	G	Y	T	F
A	L	O	R	F	H	K	E	Y	R	D	E	N	O	C	C	V	U	Q	S	T	R	M	A	Y
X	B	T	H	C	F	M	R	I	U	T	B	V	M	L	S	W	S	O	I	V	Q	C	E	K
A	C	C	N	E	T	Y	I	K	F	C	C	X	W	L	F	X	O	R	Q	U	E	C	S	W
B	H	Y	D	O	M	G	M	C	E	F	R	H	N	M	I	L	L	O	V	R	S	X	C	C
A	W	S	E	E	F	M	E	O	P	C	D	E	G	X	S	K	I	P	E	O	T	C	D	E
M	B	E	Z	W	F	G	T	U	H	E	I	G	H	T	H	T	D	C	X	M	M	N	I	D
S	A	M	T	F	G	G	E	B	A	R	E	A	J	H	X	Y	A	L	P	Y	U	V	N	G
H	S	P	H	E	R	E	R	E	J	K	C	D	R	L	S	O	R	X	W	T	H	L	S	E
P	E	J	Y	F	X	C	E	I	Z	R	T	B	H	E	S	M	E	U	G	C	B	T	O	D
E	D	T	V	N	Y	R	D	C	Y	L	I	N	D	E	R	L	A	K	F	Y	B	C	X	V

# Volume of Cylinders, Cones & Spheres Vocabulary

Name: KEY  
Hour: \_\_\_\_\_

**Directions:** Read the vocabulary definitions below. Use the word bank to select the correct word for each definition. Use a highlighter or marker to find the word in the puzzle.

BASE	HEIGHT	FACE	SOLID	FORMULA
CYLINDER	CONE	SPHERE	NET	VOLUME

- 1) A three-dimensional shape, such as a ball, whose surface consists of all the points that are a given distance from the center of the shape. SPHERE
- 2) The amount of space, or the capacity, of a three-dimensional shape. VOLUME
- 3) The bottom face of a three-dimensional shape. BASE
- 4) A three-dimensional shape with a circular end and a pointed end. CONE
- 5) A three-dimensional (3D) object. SOLID
- 6) A polygon that forms one of the flat surfaces of the some three-dimensional shapes. FACE
- 7) A pattern that you can cut and fold to make a model of a solid shape. NET
- 8) A solid with two congruent circular bases that lie in parallel planes. CYLINDER
- 9) The length of a perpendicular line drawn from one vertex to the opposite side. HEIGHT
- 10) A group of mathematical symbols that express a relationship or that are used to solve a problem. FORMULA

F	O	R	M	U	L	A	P	N	B	R	E	C	X	O	K	J	S	E	D	B	G	Y	T	F
A	L	O	R	F	H	K	E	Y	R	D	E	N	O	C	C	V	U	Q	S	T	R	M	A	Y
X	B	T	H	C	F	M	R	I	U	T	B	V	M	L	S	W	S	O	I	V	Q	C	E	K
A	C	C	N	E	T	Y	I	K	F	C	C	X	W	L	F	X	O	R	Q	U	E	C	S	W
B	H	Y	D	O	M	G	M	C	E	F	R	H	N	M	I	L	L	O	V	R	S	X	C	C
A	W	S	E	E	F	M	E	O	P	C	D	E	G	X	S	K	I	P	E	O	T	C	D	E
M	B	E	Z	W	F	G	T	U	H	E	I	G	H	T	H	T	D	C	X	M	M	N	I	D
S	A	M	T	F	G	G	E	B	A	R	E	A	J	H	X	Y	A	L	P	Y	U	V	N	G
H	S	P	H	E	R	E	R	E	J	K	C	D	R	L	S	O	R	X	W	T	H	L	S	E
P	E	J	Y	F	X	C	E	I	Z	R	T	B	H	E	S	M	E	U	G	C	B	T	O	D
E	D	T	V	N	Y	R	D	C	Y	L	I	N	D	E	R	L	A	K	F	Y	B	C	X	V