Eureka Math™

Grade 8, Module 7

Student File_B

Contains Exit Ticket and Assessment Materials

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10 9 8 7 6 5 4 3 2 1

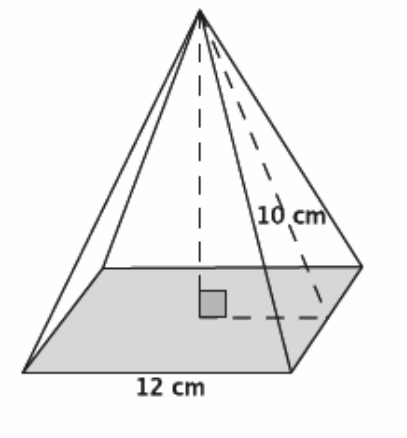
Exit Ticket Packet

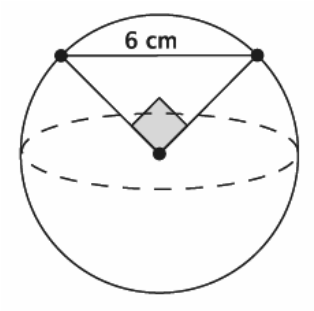
Name _____ Date _____

Lesson 19: Cones and Spheres

Exit Ticket

Which has the larger volume? Give an approximate answer rounded to the tenths place.



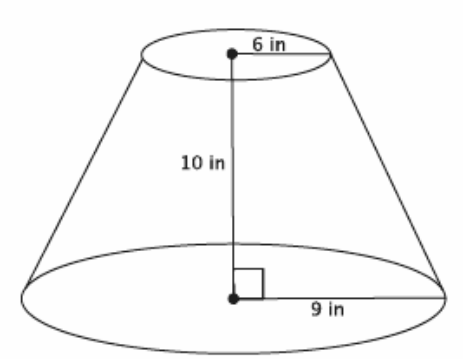


Name _____ Date _____

Lesson 20: Truncated Cones

Exit Ticket

Find the volume of the truncated cone.



a. Write a proportion that will allow you to determine the height of the cone that has been removed. Explain what all parts of the proportion represent.

b. Solve your proportion to determine the height of the cone that has been removed.

c. Write an expression that can be used to determine the volume of the truncated cone. Explain what each part of the expression represents.

d. Calculate the volume of the truncated cone.

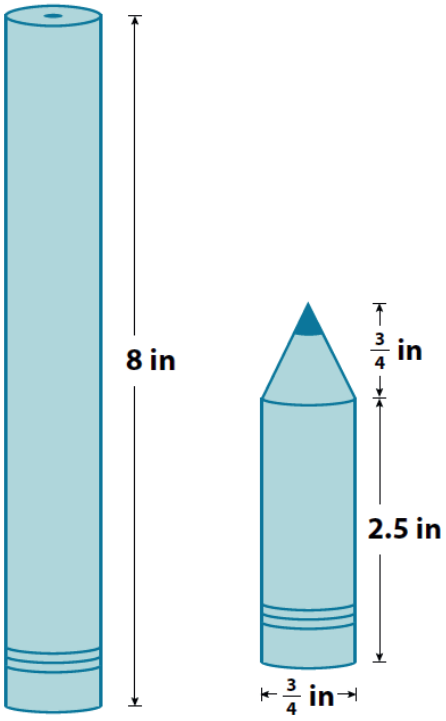
Name _____ Date _____

Lesson 21: Volume of Composite Solids

Exit Ticket

Andrew bought a new pencil like the one shown below on the left. He used the pencil every day in his math class for a week, and now his pencil looks like the one shown below on the right. How much of the pencil, in terms of volume, did he use?

Note: Figures are not drawn to scale.

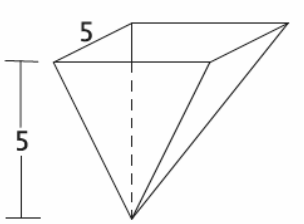


Name _____ Date _____

Lesson 22: Average Rate of Change

Exit Ticket

A container in the shape of a square base pyramid has a height of 5 ft. and a base length of 5 ft., as shown. Water flows into the container (in its inverted position) at a constant rate of 4 ft^3 per minute. Calculate how many minutes it would take to fill the cone at 1 ft. intervals. Organize your data in the table below.



Water Level (in feet)	Area of Base (in $feet^2$)	Volume (in $feet^3$)	Time (in minutes)
1			
2			
3			
4			
5			

a. How long will it take to fill up the container?

b. Show that the water level is not rising at a constant rate. Explain.

Name _____ Date _____

Lesson 23: Nonlinear Motion

Exit Ticket

Suppose a book is 5.5 inches long and leaning on a shelf. The top of the book is sliding down the shelf at a rate of 0.5 in. per second. Complete the table below. Then, compute the average rate of change in the position of the bottom of the book over the intervals of time from 0 to 1 second and 10 to 11 seconds. How do you interpret these numbers?

Input (in seconds) t	Output (in inches) $d = \sqrt{30.25 - (5.5 - 0.5t)^2}$
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

Assessment Packet

Name _____ Date _____

1.

a. What is the decimal expansion of the number $\frac{35}{7}$? Is the number $\frac{35}{7}$ rational or irrational? Explain.

b. What is the decimal expansion of the number $\frac{4}{33}$? Is the number $\frac{4}{33}$ rational or irrational? Explain.

2.

a. Write $0.\overline{345}$ as a fraction.

b. Write $2.8\overline{40}$ as a fraction.

c. Brandon stated that 0.66 and $\frac{2}{3}$ are equivalent. Do you agree? Explain why or why not.

d. Between which two positive integers does $\sqrt{33}$ lie?

e. For what integer x is $\sqrt{x}$ closest to 5.25? Explain.

3. Identify each of the following numbers as rational or irrational. If the number is irrational, explain how you know.

   a. $\sqrt{29}$

   b. $5.\overline{39}$

   c. $\frac{12}{4}$

   d. $\sqrt{36}$

   e. $\sqrt{5}$

   f. $\sqrt[3]{27}$

   g. $\pi = 3.141592\cdots$

   h. Order the numbers in parts (a)–(g) from least to greatest, and place them on a number line.

4. Circle the greater number in each of the pairs (a)–(e) below.

   a. Which is greater, 8 or $\sqrt{60}$?

   b. Which is greater, 4 or $\sqrt{26}$?

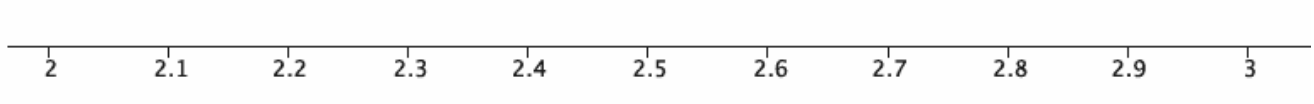
   c. Which is greater, $\sqrt[3]{64}$ or $\sqrt{16}$?

   d. Which is greater, $\sqrt[3]{125}$ or $\sqrt{30}$?

   e. Which is greater, -7 or $-\sqrt{42}$?

   f. Put the numbers 9, $\sqrt{52}$, and $\sqrt[3]{216}$ in order from least to greatest. Explain how you know which order to put them in.

5.



a. Between which two labeled points on the number line would $\sqrt{5}$ be located?

b. Explain how you know where to place $\sqrt{5}$ on the number line.

c. How could you improve the accuracy of your estimate?

6. Determine the positive solution for each of the following equations.

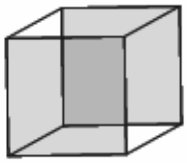
a. $121 = x^2$

b. $x^3 = 1000$

c. $17 + x^2 = 42$

d. $x^3 + 3x - 9 = x - 1 + 2x$

e. The cube shown has a volume of 216 cm^3.



$V = 216 \text{ cm}^3$

i. Write an equation that could be used to determine the length, l, of one side.

ii. Solve the equation, and explain how you solved it.

Name _____ Date _____

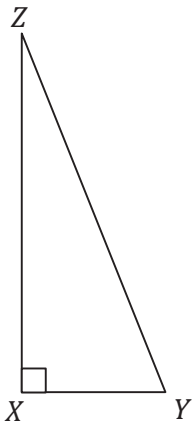
When using a calculator to complete the assessment, use the π key and the full display of the calculator for computations.

1.

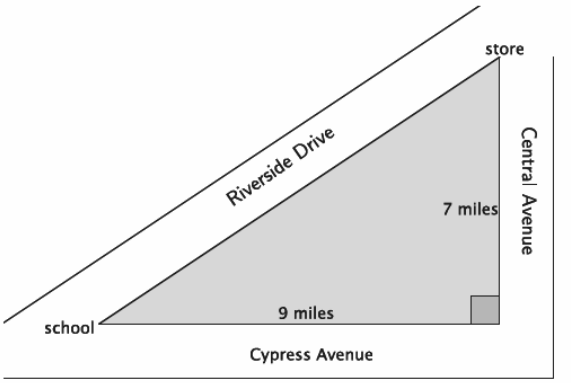
a. Is a triangle with side lengths of 7 cm, 24 cm, and 25 cm a right triangle? Explain.

b. Is a triangle with side lengths of 4 mm, 11 mm, and 15 mm a right triangle? Explain.

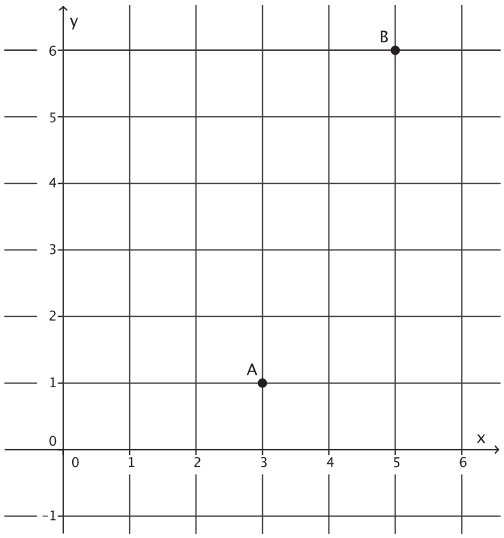
c. The area of the right triangle shown below is 30 ft^2. The segment XY has a length of 5 ft. Find the length of the hypotenuse.



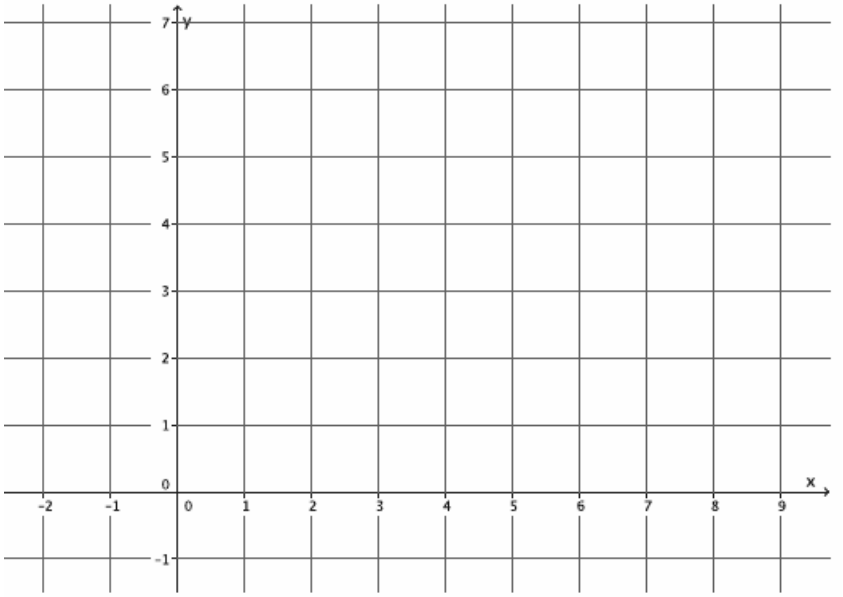
d. Two paths from school to the store are shown below: One uses Riverside Drive, and another uses Cypress and Central Avenues. Which path is shorter? By about how much? Explain how you know.



e. What is the distance between points A and B?



f. Do the segments connecting the coordinates $(-1, 6)$, $(4, 2)$, and $(7, 6)$ form a right triangle? Show work that leads to your answer.



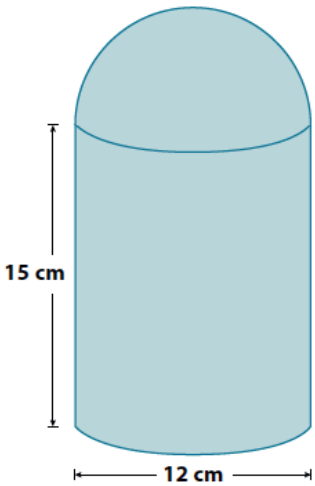
g. Using an example, illustrate and explain the Pythagorean theorem.

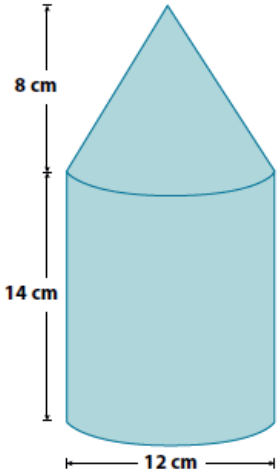
h. Using a different example than in part (g), illustrate and explain the converse of the Pythagorean theorem.

i. Explain a proof of the Pythagorean theorem and its converse.

2. Dorothy wants to purchase a container that will hold the most sugar. Assuming each of the containers below can be completely filled with sugar, write a note recommending a container, including justification for your choice.

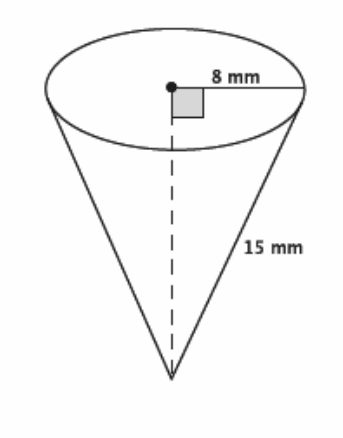
   Note: The figures are not drawn to scale.



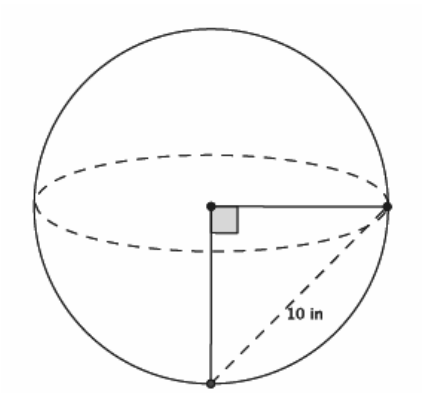


3.

a. Determine the volume of the cone shown below. Give an answer in terms of π and an approximate answer rounded to the tenths place.



b. The distance between the two points on the surface of the sphere shown below is 10 inches. Determine the volume of the sphere. Give an answer in terms of π and an approximate answer rounded to a whole number.



c. A sphere has a volume of $457\frac{1}{3}\pi$ in^3. What is the radius of the sphere?