

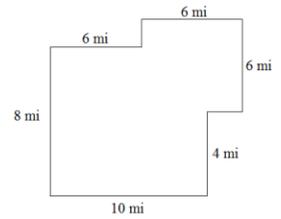
Name: \_\_\_\_\_ Period: \_\_\_\_\_

## Math 3 Honors Unit Ten Practice Test

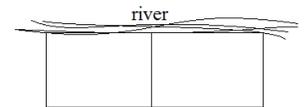
**SHOW ALL WORK!!**

- 1- Utah County has 551, 891 people living on 2,003 square miles of land. Weber County has 238,519 people living on 576 square miles. Which county has a greater population density? By how many more people per square mile?
- 2- A population of 3,000 honey bees lives in a rectangle-shaped area of the woods that is 25 meters long by 10 meters wide. What is the population density of the honey bees?
- 3- A 4 ft by 2.5 ft by 1 ft aquarium holds 20 fish. Based on the population density of this aquarium, how many fish can an aquarium in the shape of a cylinder with height of 2 ft and diameter of 1 ft hold?

- 4- A suburb of a large city has an area represented in the diagram and a population of the suburb is approximately 3000 people. Find the population density.

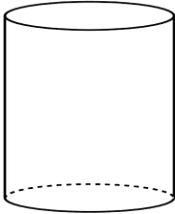


- 5- To begin an ant farm, it is suggested to have a population density of 600 ants per cubic foot. How many ants should Travis put into his new ant farm measuring 1 foot x 0.5 feet x 1 inch?
- 6- A small poster costs \$0.95. The larger version of the same poster is two times as long and two times as wide as the small poster. How much would you expect to pay for the large poster?
- 7- A local department store sells marbles that come in small boxes, 22 marbles to a box. You want to design a larger container, similar to the small one that can hold more marbles. If you tripled the dimensions of the box from the department store, how many marbles would your new box hold?
- 8- A baseball stadium normally can sell 2,000 hot dogs at a game if they charge \$3 each. They also notice that if they raise the price by \$0.25, they sell 100 fewer hotdogs. Determine the price they should charge to maximize the profit.
- 9- A farmer wants to build 2 small pens for some of his smaller animals along a river on his land. He already has 360 feet of fencing. He wants to make the pens as large as possible by utilizing the river to hold the animals in on one side and have the two pens share a common fence. What should the dimensions to maximize the area for the pens?

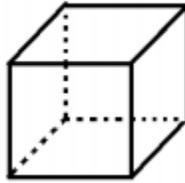


- 10- A cylindrical can is to hold 500 mL. Find the radius  $r$  and height  $h$  of a can that will minimize surface area. Set up the two equations that are necessary to use to solve this problem but do not solve.

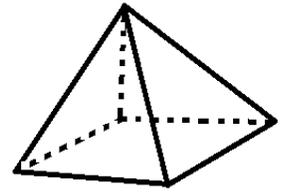
11- Draw and describe the following cross sections: cross section tilted off horizontal.



12- Draw the plane intersecting the cube to get an equilateral triangle.



13- Draw the plane intersecting the pyramid to a trapezoid.

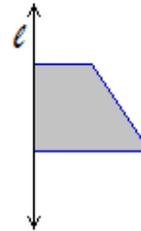


Describe and draw the solid you get by revolving the region about line  $l$ .

14-



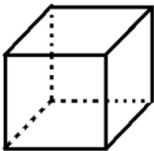
15-



A solid is given, draw the requested cross section and then place it as directed on line  $l$ . Draw the solid of revolution you get by revolving the cross section about line  $l$ .

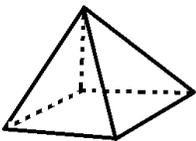
16- Rectangle

Place the longer side on line  $l$ .



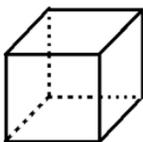
17- Isosceles Triangle

Place base on line  $l$ .



18- Trapezoid

Place longest base on line  $l$ .



Practice Test Solutions:

[https://drive.google.com/file/d/0B\\_daxRpQsIH\\_eE8yQ3NrSXNpZzA/view?usp=sharing](https://drive.google.com/file/d/0B_daxRpQsIH_eE8yQ3NrSXNpZzA/view?usp=sharing)