Integrated Math III

Name: _____

Per: _____ Date: _____
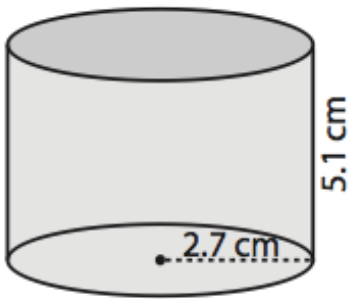
Unit 2 Quest Study Guide

Formulas: Prism $V = Bh$ Cone $V = \frac{1}{3}\pi r^2 h$ $SA = \pi r^2 + \pi r l$

Cylinder $V = \pi r^2 h$ Sphere $V = \frac{4}{3}\pi r^3$ $SA = 4\pi r^2$

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

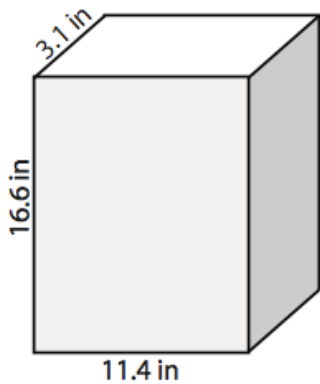1. Determine the following information for the following cylinder:

A.) Vertical Cross Section(s)   B.) Horizontal Cross Section(s)

C.) Surface Area   D.) Volume

5.1 cm

2.7 cm

2. Determine the following information for the following rectangular prism:

A.) Vertical Cross Section(s)   B.) Horizontal Cross Section(s)

C.) Surface Area   D.) Volume

3.1 in

16.6 in

11.4 in

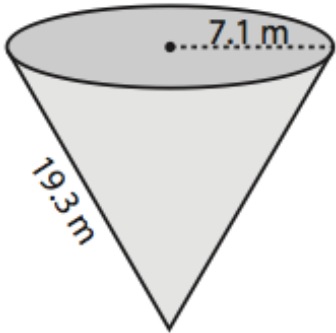3. Determine the following information for the following cone:
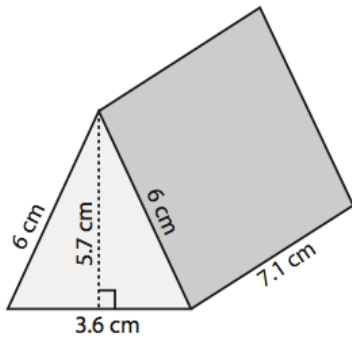
...7.1 m...

19.3 m

A.) Vertical Cross Section(s)

B.) Horizontal Cross Section(s)

C.) Surface Area

D.) Volume

4. Determine the following information for the following triangular prism:

6 cm

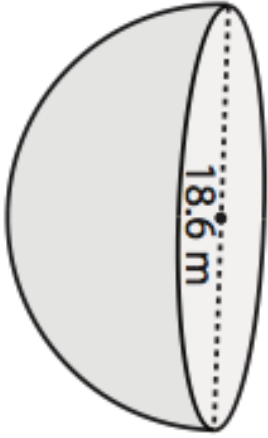5.7 cm

6 cm

7.1 cm

3.6 cm

A.) Vertical Cross Section(s)

B.) Horizontal Cross Section(s)

C.) Surface Area

D.) Volume

5. Determine the following information for the following object:

18.6 m

      A.) Vertical Cross Section(s)   B.) Horizontal Cross Section(s)

      C.) Surface Area   D.) Volume

6. Describe, in words, why <u>both</u> $\frac{mass}{volume}$ & $\frac{population}{area}$ can calculate density.

7. Given a pyramid with a six-sided (hexagonal) base, explain what shape your cross section would look like if you:

    A.) Made horizontal cross sections

    B.) Are the horizontal cross sections congruent or similar?

    C.) Made vertical cross sections

    D.) Are the vertical cross sections congruent or similar?

8. Henry had 18 mosquito bites on his arm. His mom put a circle around the mosquito bites and found that the diameter of the circle was 7 inches wide.

    A.) Find the area of the circle created by Henry's mom.

    B.) Find the density of the mosquito bites per inches^2.

9. Grandma planted 1200 flowers in her 11-by-12-ft garden. Grandpa planted 5100 flowers in his 17-by-30-ft garden. Whose garden has a higher density of <u>flowers per square foot</u>? Mathematically justify your answer.

10. The population density of Sandwich, IL (Mr. Shepherd's home town) is 1,564 people per square mile. How many people live in Sandwich if the town covers 4.71 mi^2

11. The population density of Taco, IL (Sandwich's rival) is 1,155 people per square mile. If there are 6,887 people living outside the bun, how many square miles is Taco, IL?

12. The average Television has a mass of 12,473.79 grams. Find the density if the volume of an average TV is 1507.92 in^2.