Lesson 2.3

Volume

Name: _____

Show You Know

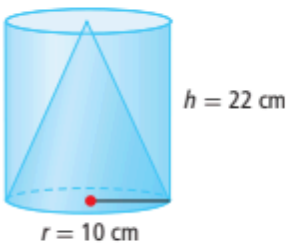|		
Ex. 1 a) What is the volume of the right cylinder, to the nearest cubic centimeter? b) What is the volume of the right cone, to the nearest cubic centimeter?	$h = 22$ cm $r = 10$ cm	**Ex. 2** a) The Muttart Conservatory also has two smaller greenhouses. The base of each greenhouse is a square with side length 19.5 m, and the height of each greenhouse is 18 m. What is the volume of each of the smaller greenhouses?
Ex. 2 b) If the smaller greenhouse had been designed as a right rectangular prism with the same size base, what would its height have to be in order for the greenhouse to have the same volume?	**Ex. 3** a) Find the cube root of 343. b) Find the diameter, correct to the nearest millimeter, of a sphere with volume 288π cm^3.	**Ex. 4** The Dominion Astrophysical Observatory near Victoria, BC, has a cylindrical base with a diameter of 20.1 m and a height of 9.8 m. The dome is half a sphere with the same diameter as the cylindrical base. What is the volume of the observatory?

Practice

1. Earth has a diameter of approximately 12 740 km. What is Earth's volume?

Volume

2. Kyle plans to operate a snow cone stand. He determines that his right conical cups needs a capacity between 75 cm³ and 100 cm³. Will either of the following cups meet this standard? Justify your answer mathematically.

    a. a conical cup with a height of 10 cm and a diameter of 6 cm.

    b. a conical cup with a height of 6 cm and a diameter of 10 cm.

3. Stan's company is designing a container that must have a volume of 750 cm³.

    a. What is the height of a cylindrical container with a diameter of 10 cm?

    b. What is the height of a right prism with a square base measuring 10 cm by 10 cm?

    c. Determine the surface area of the containers in a) and b).

    d. Which container would you recommend Stan's company produce? Explain your answer.