**Volume of Spheres**

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| ***Sphere*** |  |

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| ***Example 1:*** Determine the volume of this sphere in ft3. | ***Example 2:*** Determine the volume of this basketball if the diameter is 30cm.http://t0.gstatic.com/images?q=tbn:KTL0quFtkoivfM:http://www.swgc.mun.ca/releases/PublishingImages/basketball.jpg |
| http://t3.gstatic.com/images?q=tbn:cid7cVKU8Beq1M:http://www.rockpool.com.au/blog/wp-content/uploads/2009/05/cream-of-chestnut-soup-with-thyme-and-garlic-croutons-1024x742.jpg***Example 3:*** A soup bowl is in the shape of a hemi-sphere (half sphere). If the bowl is filled to the rim, and has a diameter of 6.5in, how much soup is there? |

**Surface Area of Spheres**

The surface area of a sphere is **four** times the surface area of one cross section through the centre of the sphere.

A= 4 πr2





r

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| ***Example 1:*** Determine the surface area of the basketball if the diameter is 30cm.thumbnail | ***Example2:*** This foam piece is in the shape of a hemisphere. You plan to paint the entire outer surface. Calculate the surface area if the radius of the circle base is 2.5cm. thumbnail |

**Composite Volume of Prisms, Pyramids, Cylinders, Cones, and Spheres**

Composite shapes are shapes that don’t have a ‘unique’ name, but they are made up of other shapes we are familiar with. An icecream for example, is a cone with a hemisphere.

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| a. How much icecream is here, assuming the cone is filled with icecream? | b. How much air is inside this empty house, which is made up of a rectangular prism base and a triangular prism roof? |
| c. Pineapple can be bought in sliced rings that look like the sketch provided. If the outer ring has a radius of 7cm and the inner ring has a radius of 3cm, where the height is 1cm in both cases, find the **volume** of this pineapple slice.  | d. The following shape is called a frustrum. It is a square-based pyramid with the tip cut off. Find the volume of the frustrum. |
| http://t0.gstatic.com/images?q=tbn:GyKALbj_HKs-WM:http://midwestsports.typepad.com/.a/6a01157020e7c8970c0120a55c66ed970c-800wie. Three tennis balls are packaged tightly into a cylindrical container. The diameter of one tennis ball is 1.7in. Determine the volume of the space in the can not taken up by the tennis balls.  | f. A shipping tube that ships 3-packs of soccerballs is made from a cylindrical center with a hemisphere at each end. Calculate the space that is inside the container. \*watch for the units |
| ANSWERS: a. 307.7cm3, b. 158.76m3, c. 125.6cm3, d. 7.7ft3, e. 3.9in3, f. 47,427cm3 |

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| h. A rectangular prism has a volume of 603cm3. If a rectangular pyramid has the same base and height as this prism, calculate the volume of the pyramid. |
| i.A rectangular prism has a volume of 73.6m3. If the length is 8m, the width is 4m, what is the height? | j.A cylinder has a volume of 2009.6cm3. If the radius is 8cm, find the height of this cylinder. |
| ANSWERS: h. 201cm3, i. 2.3m, j. 10cm |