                                                              Date:_____

Warm Up: QUIZ on Surface Area and Volume of Prisms, Pyramids, Cylinders and Surface Area of Cones.

Volume of Cones

A _cylinder_ is a three dimensional solid with identical parallel circular bases. The lateral surface is curved and extends from one base to the other base.

The volume of a cylinder is the same as a prism: $V = A_{base} \times$ height

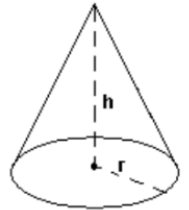   or   V =

Similar to the relationship between the pyramid and the prism, the volume of a cone is one third the volume of a prism with the same radius and height.
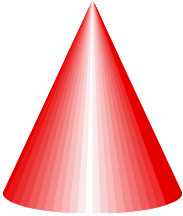
Volume of a cone = $A_{base} \times$ height

or, V_{cone} =   or

Example 1: Calculate the volume of a cone with radius 3 mm and height 7 mm.
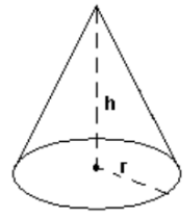
Example 2:
 a) If the height of a cone is tripled, does this triple the volume? Explain.

b)   If the radiu)s of a cone is tripled, does this triple the volume? Explain.

Example 3: A grain bin has a radius of 12 ft and a height of 48 ft. How much grain will the farmer need to order to fill the bin? (Note: 1 kg of grain fills 1 ft^3 of space. Also, assume grain (oats) is ordered in tonnes (1 metric ton = 1000kg).) (Note: the cone portion has a height of 18 feet)

Example 4: A conical pile of sand has a base diameter of 10 m and a slant height of 8 m. Determine the volume of the sand in the pile, to the nearest cubic metre.

Example 5: A fountain firework is packaged in a conical container. Its volume is 210 m^3. Its diameter is 8 cm. What is the height of the fountain firework, to the nearest tenth of a centimeter?

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