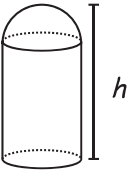
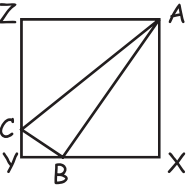


# Warm-Up 11

- \_\_\_\_\_ <sup>sq in</sup> A square and a circle overlap such that a vertex of the square is at the center of the circle. The 4-inch radius of the circle is one-half the length of a side of the square. What is the area of the portion of the square region that is outside the circular region? Express your answer in terms of  $\pi$ .
- \_\_\_\_\_ What is the remainder when  $2008^{2007}$  is divided by 5?
- \_\_\_\_\_ <sup>triangles</sup> How many non-congruent triangles, each with a perimeter of 15 units, can be constructed with all integral side lengths?
- \_\_\_\_\_ <sup>meters</sup> This container is made from a right circular cylinder and a hemisphere of the same radius on top. The volume of the entire container is  $108\pi$  cubic meters. The base of the container has a radius of 3 meters. What is the height of the container from the bottom base to the top of the hemisphere?  

- \_\_\_\_\_ <sup>sq units</sup>  
 Triangle ABC has its vertices located on square  $AXYZ$ , as shown. If  $XB = 7$ ,  $BY = 3$  and  $YC = 2$ , what is the area of triangle ABC?
- \_\_\_\_\_ Gary will roll two standard six-sided dice once. What is the probability that the difference between the two numbers rolled will be a multiple of 2? Express your answer as a common fraction.
- \_\_\_\_\_ The point  $(8, 10)$  is the same distance from the point  $(0, y)$  as it is from the  $x$ -axis. What is the greatest possible value of  $y$ ?
- \_\_\_\_\_ <sup>items</sup> Twenty people each competed in a scavenger hunt. Twenty percent of the people each found 80% of the items, and 80% of the people each found 20% of the items. Those who found the most items found a dozen items each. How many items were on the list?
- \_\_\_\_\_ A set of nine positive integers has a median of 5, a mean of 6 and a unique mode of 8. What is the largest integer that can be a member of the set?
- \_\_\_\_\_ My piggy bank has only nickels, dimes and dollar bills. The ratio of nickels to dimes is 2:3, and the ratio of dimes to dollar bills is 10:1. What is the ratio of coins to dollar bills? Express your answer in the form  $a:b$ , where  $a$  and  $b$  are positive integers with no common factors greater than 1.  
