## Assignment

Write
Describe in your own words the difference between a right prism and an oblique prism.

Remember
You can create three-dimensional solid figures by rotating or translating two-dimensional shapes.
Cavalieri's Principle for area states that if the lengths of one-dimensional slices—just line segments—of two figures are the same, then the figures have the same area.
Cavalieri's Principle for volume states that, given two solids included between parallel planes, if every plane cross section parallel to the given planes has the same area in both solids, then the volumes of the solids are equal.

Practice
1. Identify the solid and its dimensions formed by a rotation using a vertical axis.
   a. A 4 cm by 6 cm rectangle with its shorter side attached to the axis.
   b. A 4 cm by 6 cm rectangle with its longer side attached to the axis.
2. Translate the rectangle in a diagonal direction to create a second rectangle. Identify the name of the solid formed by this translation when the corresponding vertices of the two rectangles are connected.
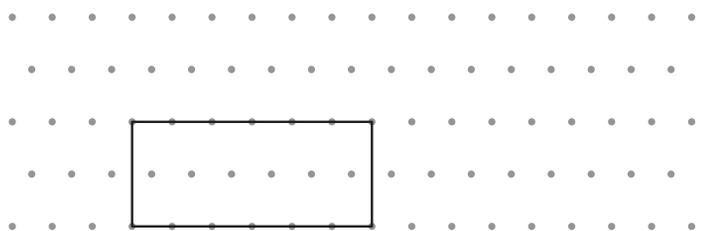
3. Congruent discs with an area of 30π square inches are stacked to a height of 8 inches.
   a. What is the name of the solid figure formed by the stacked discs?
   b. What is the volume of the solid figure formed by the stacked discs?
4. Consider the solids shown.
   Casey says the two figures have the same volume. Is he correct? Explain your reasoning.
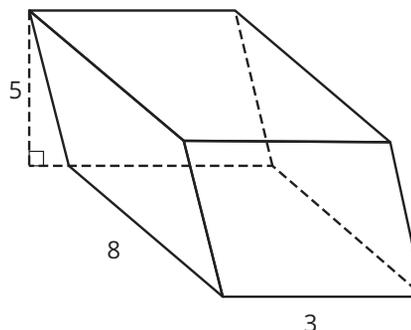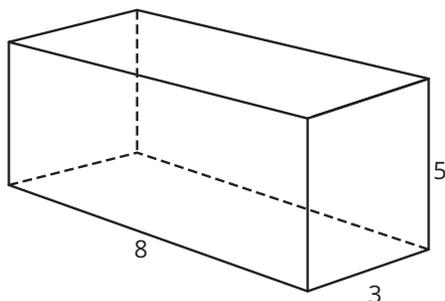
Stretch

1. The penny is a commonly used coin in the U.S. monetary system. A penny has a diameter of 19 millimeters and a thickness of 1.27 millimeters. The volume of a penny is 360 cubic millimeters. Suppose you stack 10 pennies on top of each other to form a cylinder.
   a. What is the height of the stack of pennies?
   b. What is the volume of the stack of pennies?
   c. Determine the area of the face of a penny. Use 3.14 for π. Round your answer to the nearest hundredth.
   d. Multiply the area of a penny by the height of the stack of pennies. Compare your product to the answer from part (b). How do the two answers compare? What does this tell you about calculating the volume of a cylinder?

Review

1. The Elizabeth Tower in London holds a clock with a bell known as Big Ben. The clock face measures 7 meters in diameter. Determine the area of the sector formed by the minute hand and the hour hand on the clock when the time is 11:00.

2. A pizza shop needs a new building sign. The owner wants a circular sign with a 5-foot diameter. He wants to remove a portion so that the shape looks like a pizza with a slice taken out of it, and then he is going to paint the sign. The diagram shows what the sign will look like. How much surface area of the sign will be left for the owner to paint? Use 3.14 for π. Round your answer to the nearest hundredth if necessary.

   75°
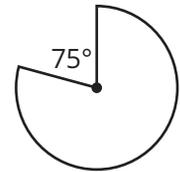
3. Determine side length BC. Round your answer to the nearest tenth.

   √11 cm
   17°
   A   B
        C
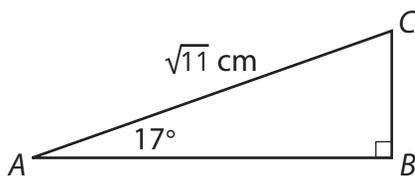
4. Calculate the measure of $\angle X$. Round your answer to the nearest tenth.

   X
   2.5 in
   J   2.0 in   M
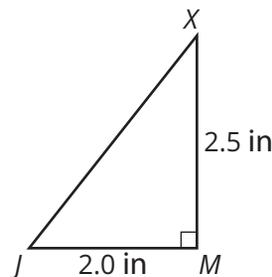
5. Determine the ratios $\dfrac{\text{opposite}}{\text{hypotenuse}}$, $\dfrac{\text{adjacent}}{\text{hypotenuse}}$, and $\dfrac{\text{opposite}}{\text{adjacent}}$ using $\angle A$ as the reference angle. Write your answers as fractions.

   B
   14
   C   7√3   A

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