Name _____ Date _____

# Objective 8
# TEKS 8.8.C Review

**8.8.C Estimate measurement and use formulas to solve application problems involving lateral and total surface area and volume.**

Since application problems involving surface area and volume can be complex, use a problem-solving plan to determine whether you have covered all aspects of the problem.

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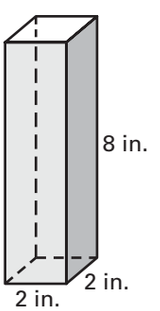
| Identify relevant information. |
| Apply the correct formula(s). |
| Answer the question in the problem. |

**EXAMPLE** Jeremy sells specialty carved soaps packaged in a rectangular box. The box stands 8 inches high, and is 2 inches wide and 2 inches long. He wants to label the sides of the box but not the top or the base. The label company charges $.04 per square inch of paper. How much will it cost to buy labels for an order of 50 boxes?




Since the labels are for the sides only, find the lateral surface area of the rectangle.

| | |
|---|---|
| $A = \ell w$ | Area of one side of the box |
| $A = (8)(2)$ | length = 8 in.; width = 2 in. |
| $A = 16$ square inches | Area of one side |
| $S = 16 \times 4 = 64$ square inches | Multiply by 4 = lateral surface area |
| $64 \text{ in.}^2 \times \$.04 = \$2.56$ | Multiply the lateral surface area by $.04 to find the cost of the paper. |
| $\$2.56 \times 50 = \$128$ | Multiply $2.56 by 50 boxes. |

The cost to buy labels for 50 boxes is $128.

**YOU DO IT** Ethan dug a round hole with a flat bottom, 4 feet deep and 3 feet across, so that he can plant an oak tree. He wants to replace the clay soil he dug from the hole with soil from a nursery. The nursery sells the soil in bags of 3 cubic feet. How many bags of soil should Ethan buy? Use 3.14 for $\pi$.

Ethan wants to find the amount of soil in a round hole, so he should use the volume formula for a **cylinder**. The formula is $V = \pi r^2 h$.

Find the volume of the hole.

$V =$ **3.14** $\times$ **$1.5^2$** $\times$ **4** $=$ **28.26** $\text{ft}^3$

Find the number of bags of soil.

**28.26** $\div$ **3** $=$ **9.42** bags

Because Ethan needs more than **9** bags of soil to fill the hole, he should buy **10** bags.