

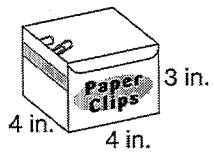
LESSON
10-4

Challenge
Saving Trees

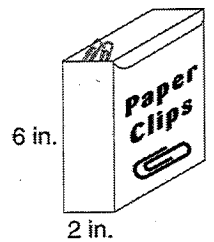
Boxes with different dimensions can have the same volume.
 Marcus Manufacturing uses boxes to ship office supplies to stores.
 The less cardboard used to make a box, the less the box costs.

In each set, the boxes have equal volume. Find the missing dimension, if necessary. Write the surface area below each box. Then circle the box in each set that uses the least amount of cardboard.

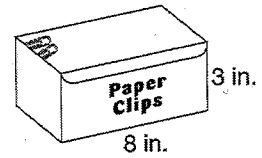
1.



surface
area = _____

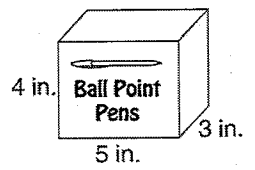


width = _____
surface
area = _____

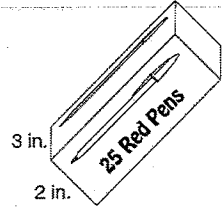


width = _____
surface
area = _____

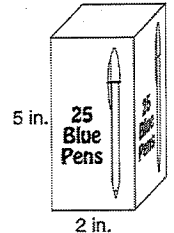
2.



surface
area = _____

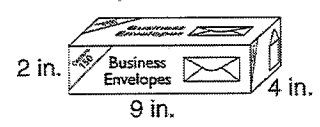


width = _____
surface
area = _____

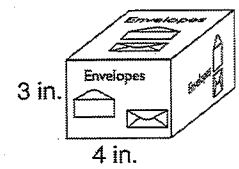


width = _____
surface
area = _____

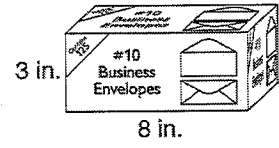
3.



width = _____
surface
area = _____



width = _____
surface
area = _____



width = _____
surface
area = _____

LESSON
10-4

Problem Solving

Surface Area of Prisms and Cylinders

Write the correct answer.

- | | |
|---|---|
| <p>1. A can of peas is 3 inches in diameter and 4.5 inches tall. What is the area of the label used around the can?</p> <p>_____</p> | <p>2. How much wrapping paper do you need to completely cover a rectangular box that is 20 inches by 18 inches by 2 inches?</p> <p>_____</p> |
| <p>3. Jan puts frosting on a circular cake. The cake has three layers, each with a diameter of 20 centimeters and a height of 5 centimeters. Jan puts frosting between the layers and on the outside, except for the bottom. What is the area that Jan frosts? Round to the nearest square centimeter.</p> <p>_____</p> | <p>4. A cardboard storage carton has a length of 3 feet, a width of 2 feet, and a volume of 12 ft³. What is the minimum amount of cardboard needed to make the box?</p> <p>_____</p> |

Choose the letter of the correct answer.

- | | |
|---|--|
| <p>5. A cylindrical building is 30 meters in diameter and 50 meters high. The outside of the building, excluding the roof, is completely covered in glass. To the nearest square foot, what is the total area of the glass?</p> <p>A 1,413 m³ C 6,113 m³
 B 4,710 m³ D 9,420 m³</p> | <p>6. Rebecca gives gifts to 12 employees. Each gift is in a box that is 12 inches by 10 inches by 3 inches. How much wrapping paper does Rebecca need to completely the cover the boxes?</p> <p>F 360 in² H 4,464 in²
 G 1,720 in² J 14,400 in²</p> |
| <p>7. A cylinder-shaped sculpture is 24 meters high with a diameter of 6.8 meters. An artist plans to spray-paint the entire surface with silver paint. If one can of spray paint covers 50 square meters, how many cans does the artist need to paint the sculpture?</p> <p>A 51 cans C 12 cans
 B 22 cans D 10 cans</p> | <p>8. A rectangular sofa cushion is 36 inches by 30 inches by 20 inches. How many cushions can be covered with 38,400 square inches of material?</p> <p>F 6 cushions H 39 cushions
 G 8 cushions J 10 cushions</p> |