Chapter 12

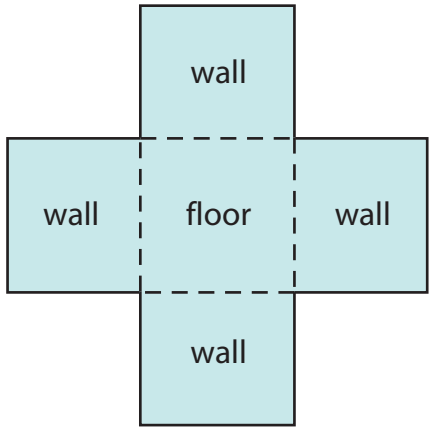
Lesson 8

Name _____ Date _____

Comparing Volume and Surface Area

NCTM Standards 1, 3, 4, 6, 7, 9, 10

The floor of Taylor's room measures 12 ft by 12 ft. The height from floor to ceiling is 10 ft.



1 Taylor wants to paint the four walls of his room with some paint he already owns. It says on the can that a gallon of paint will cover 450 sq ft. If the can is full, does he have enough paint to paint the four walls?

_____

Show how you know.

2 If he buys another gallon of the same paint, will he have enough to paint the walls and ceiling?

_____

Show how you know.

3 Opening a window will give Taylor enough ventilation so that he is not bothered by the paint fumes, but he wants to know how much air is in the room itself. How many cubic feet of air does the room contain?

_____

Show your computations.

Solve the problems. Draw a diagram if you wish.

The volume of a room is 1,200 cu ft, and the height from floor to ceiling is 10 ft.

4 What is the area of the floor?

_____

Show your computations.

5 What is the area of the flat ceiling?

_____

How do you know?

6 What might be the measurements of the floor?

_____ by _____

7 Using those measurements, what is the area of each wall?

Wall: _____ Wall: _____

Wall: _____ Wall: _____

8 **Challenge** If all the dimensions of the room were doubled, how would the volume change? Explain.

_____

_____