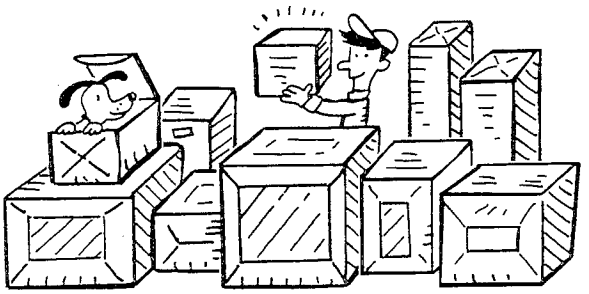
Name _____ Date _____

Moving Out

Finding Volume



Genaro and his parents are moving. Moving to a new home is exciting, but it is also a lot of work, as Genaro found out when he began helping his parents pack. Solve the following problems. Use the formula $V = l \times w \times h$.

1 Genaro's parents plan to place some items in a storage unit. The storage unit is 10 feet long, 12 feet high, and 5 feet wide. What is the volume of this storage unit?

A larger storage unit is 20 feet long, 12 feet high, and 10 feet wide. How much more volume does this storage unit have than the smaller one?

2 Genaro's mother wants to pack various small items in 1-cubic-foot boxes. She plans to pack these small boxes in bigger boxes that measure 3 feet long, 2 feet high, and 2 feet wide. How many 1-cubic-foot boxes can she pack in each larger box?

If she decides to pack the 1-cubic-foot boxes in a box that is 4 feet long, 2 feet high, and 2 feet wide, how many 1-cubic-foot boxes can she pack?

3 Genaro wants to pack his encyclopedias in storage crates. Each crate is 1.5 feet long, 10 inches high, and 14 inches wide. How many cubic inches does each crate contain?

His encyclopedia set contains 24 books. He can fit 18 books in one storage crate and 6 others in a second crate. Assuming the first crate is filled, how much space is left in the second crate?

4 Genaro owns a collection of model cars. Each car is stored in a box that is 3 inches long, 2 inches high, and 2.5 inches wide. He has 40 cars and wishes to pack them in a large box. Estimate the volume of a box that would be big enough to hold the 40 model cars.

5 Genaro's father had a box 2 feet long, 1 foot high, and 1 foot wide in which to pack items from the garage. After packing some of the items, Genaro and his father found that the box was not big enough. Genaro suggested that they use another box that was twice as long, twice as high, and twice as wide. He said that this box would have twice the volume as the first box. Was he right? Explain your answer on the back of this page.

Name _____ Date _____

Packing Up

Finding Surface Area

Teena's mother owns a gift shop. Sometimes Teena helps in the shop by wrapping packages. Solve the following problems.

1 One of the biggest boxes Teena had to wrap was 3 feet long, 2.5 feet wide, and 1.5 feet high. How much wrapping paper was needed to cover the box?

_____

2 Teena had to wrap another box, which was 20 inches long, 3 inches high, and 2 inches wide. What was the surface area of this box?

_____

She had a section of wrapping paper that was 48 inches long and 12 inches wide. Did she have enough paper to wrap the box? If yes, how much paper, if any, did she have left over?

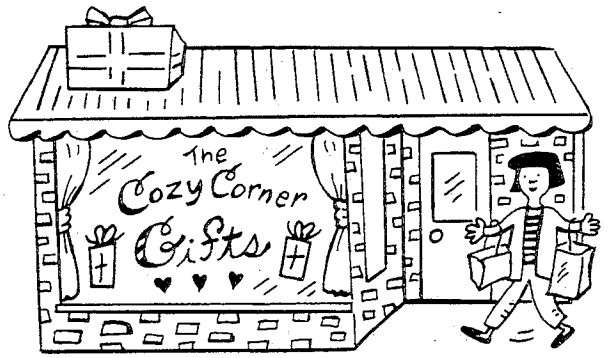
_____

If no, how much paper was she short?

_____

3 A customer wanted a package wrapped with two kinds of paper. The box was 14 inches long, 6 inches high, and 8 inches wide. The top of the box was 14 inches by 8 inches. The customer wanted solid blue wrapping paper for the top, and red wrapping paper for the rest of the box. What was the least amount of blue wrapping paper needed?

_____



What was the least amount of red wrapping paper needed?

_____

4 One Saturday, Teena and her mother decided to paint the stockroom in the back of the shop. They wanted to paint four walls and the ceiling white. The room was 15 feet long, 12 feet high, and 10 feet wide. The door was also to be painted white. Find the total area that needs to be painted.

_____

A gallon of white paint covers 410 square feet. Assuming that the room required only one coat of paint, how much paint should they buy to paint the room?

_____

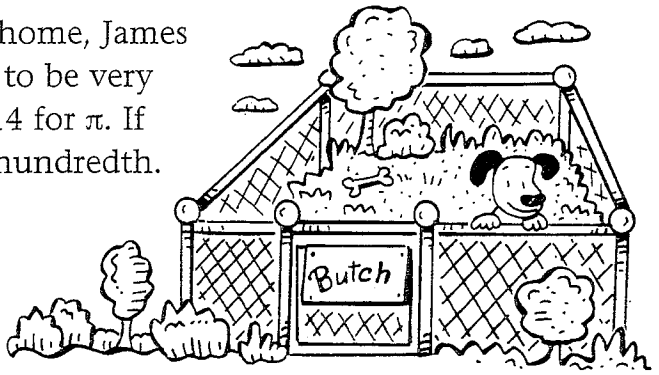
5 Teena had two boxes to wrap. One was 3 inches by 5 inches by 2 inches, and the other was 6 inches by 5 inches by 1 inch. Teena assumed that since these boxes had the same volume, they would have the same surface area. Do they? Explain your answer on the back of this page.

Name _____ Date _____

James and Geometry

Geometry Review

When James's family began remodeling their home, James found the geometry he had learned in school to be very helpful. Solve the following problems. Use 3.14 for π. If necessary, round your answers to the nearest hundredth.



1 After remodeling the three upstairs bedrooms, James's parents decided to buy new rugs for each room. Each room was rectangular. The first room was 18 feet by 14 feet. The second room was 12 feet 6 inches by 10 feet. The third room was 9 feet 9 inches by 9 feet. What was the area of the first room?

What was the total area of the three rooms?

2 James and his father built a fishpond in the backyard. The rectangular pond was 4 feet long, 3 feet deep, and 3.5 feet wide. If water is to fill the pond to a depth of 2.5 feet, how much water (in cubic inches) will be needed?

About how many gallons of water is this? (The volume of 1 gallon of water equals about 231 cubic inches.)

3 James's mother would like to make a circular flower garden near the fishpond. The garden is to be 5 feet in diameter. What is the area of the garden?

James's father suggests placing plastic edging around the garden. How much edging should they buy to go around the garden?

4 The family would also like to fence in a rectangular area for Butch, their dog, to run. The area to be fenced in is 64 feet by 28 feet. Not including the gate, which is 4 feet wide, how many feet of fence will they need to buy?

5 James's father asked James to repaint a wooden crate that was used for storage. The crate was 4 feet long, 30 inches high, and 2 feet wide. What was the surface area of the crate?

6 James's mother would like to tile the foyer by the front door. The foyer is a square with sides 8 feet long. The tiles are squares with sides 8 inches long. James estimates that they will need 144 tiles. On the back of this page, explain how he got this answer and decide if he is correct.