

SAMPLE PROBLEMS

18. The label on a container of grated cheese is shown at right.

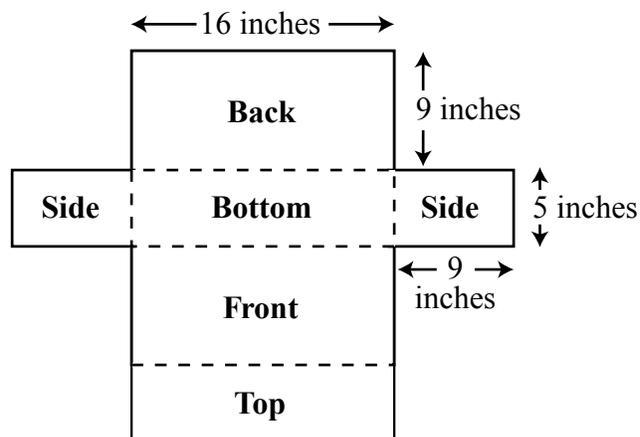
ROMANO CHEESE
NET WT 6 OZ
Serving Size: 2 tsp (5 grams) Servings in container: 34
Amount Per Serving
Calories: 20
Calories From Fat: 10
Total fat: 1.5g
Sodium: 75mg (3% of Recommended Daily Allowance)

- Which quantity on this label is a measurement of capacity?
- Which quantities are measurements of weight?
- How many milligrams of total fat are in 1 serving of this cheese?
- How many grams of sodium are in a serving?
- How much total fat is in a teaspoon of the cheese?
- How many teaspoons of cheese are in the container?
- A standard cup is 48 teaspoons. Which of these best describes the contents of the container?

$\frac{3}{4}$ cup ; 1.25 cups ; $1\frac{2}{3}$ cups ; 2.3 cups ; $1\frac{1}{2}$ cups

- Notice that 1 serving of this cheese contains 75 mg of sodium, which is 3% of the Recommended Daily Allowance.
What is the Recommended Daily Allowance of sodium?
- How many calories per gram are provided by this cheese?
- How many calories are provided by $9\frac{3}{4}$ grams?
- How many grams will provide 70 calories?

23. This picture shows the measurements for the pattern for a cardboard box. The picture is not drawn to scale.



a. How many square inches of cardboard were used to make this pattern?

b. When the pattern is made into a box, how many cubic inches of sand will the box hold?

c. How many cubic inches is a cubic foot?

d. Which of these is closest to the number of cubic feet of sand that the box will hold?

$$6 ; 2 ; \frac{3}{4} ; \frac{1}{2} ; \frac{1}{12}$$

33. The chart at right shows the height of a tree after each of its five first years of growth.

a. Describe the pattern of growth for these 5 years.

Suppose the tree continues to grow according to this pattern until it reaches its maximum height.

b. How tall will the tree be after 6 years of growth?

c. After how many years will the tree reach its maximum height?

d. Is the tree growing at a steady rate? Explain.

e. Suppose you drew a coordinate graph to represent the year-by-year growth of the tree. Would all the data points lie on a single line? Explain.

f. On a sheet of graph paper, construct a coordinate system to fit the data that you have about the growth of the tree. Represent the years of growth on a horizontal number scale, and the heights of the tree on a vertical scale. Choose a unit for each scale so that all the data will fit in the grid, and the location of data points will be easy to approximate.

(Hint: Consider beginning the vertical scale at a number greater than 0.)

g. Explain what can be “seen” in the graph that indicates that the rate of growth is decreasing each year.

Years of Growth	Height of Tree
1	28 inches
2	52 inches
3	6 feet
4	$7\frac{1}{3}$ feet
5	8 ft. 4 in.

65. During Easter time, the Country Store displays baskets of colored eggs. The same number of eggs is put into each basket. We will let e represent this number. Write an expression to represent each of the following quantities:

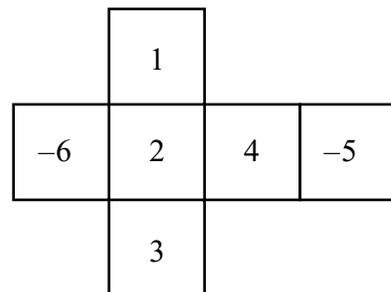
- the number of eggs in 7 baskets plus 4 extra eggs
- the number of eggs in 5 baskets with 1 egg missing from each basket
- the number of eggs that were leftover when $15e - 2$ eggs were put into baskets

97. For each equation, explain a mental strategy for finding the number that k represents.

- | | | |
|--------------------|---------------------------------|-------------------|
| a. $65 - k = 42$ | b. $2560 \div k = 256$ | c. $k + 37 = 88$ |
| d. $30k = 5000$ | e. $16 \times 1\frac{1}{2} = k$ | f. $k \div 8 = 9$ |
| g. $1.2 + k = 7.4$ | h. $20 \times 40 \times 30 = k$ | i. $2k + 3 = 17$ |

73. Seven hundred people are lined up waiting for the 4th of July parade. A veteran walks down the line and gives every fifth person a small flag. A clown follows behind him and gives every twelfth person a balloon. How many people get both a flag and a balloon?

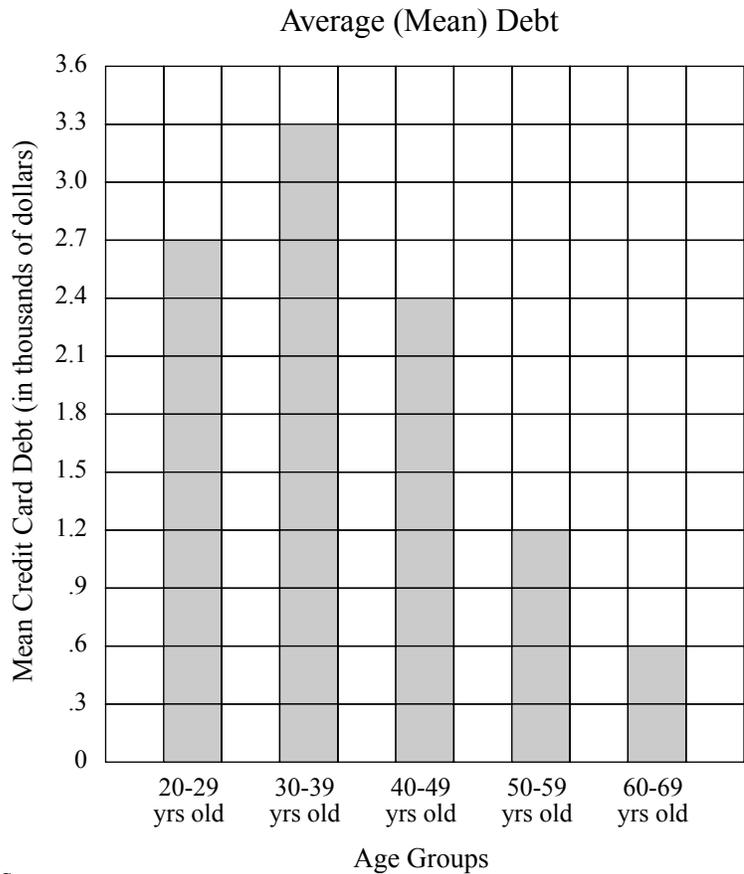
77. The figure at right shows the numbers that are printed on the faces of Goofy Dice. The numbers represent points won or lost in a game. (As usual, positive numbers indicate points won and negative numbers indicate points lost.)



When a player rolls a pair of Goofy Dice, his or her score for that turn is the sum of the two numbers that land on top.

- What is the best score that a player can make on one turn?
What is the worst score?
- On a particular turn, is a player more likely to get a positive score or a negative score?
- After five turns, what is the biggest possible difference in the total scores for two players?

78. A credit card company separated the records of its customers into age-groups as shown in the graph below. The records were examined, and the average (mean) debt for each age-group was calculated. (The amount of debt for a card-holder is the unpaid balance which remains after the last monthly payment.)



a. Write the correct number to complete this sentence: For people who are 50 to 59 years old, their average credit card debt is \$_____.

b. The credit card company adds a finance charge of 2% per month on unpaid balances.

What is the average (mean) monthly finance charge for people who are 30 to 39 years old?

c. This company has 34,000 card-holders who are 20 to 29 years old; 58,000 card-holders who are 30 to 39 years old; and 67,000 card-holders who are 40 to 49 years old.

About how much money per month does the company collect in finance charges from the people in these three age groups?

d. Write a sentence, based on the information in this graph, which describes a relation between age and credit card debt.

104. The picture at right shows the courtyard at an apartment complex.

Each side of the courtyard is 30 ft. long. The fountain at the center is a distance of 26 ft. from each side, as shown.

a. A brick wall is to be built around the courtyard at a cost of \$40 per foot.

What will be the total cost for the construction of the wall?

b. What is the area of the courtyard?

