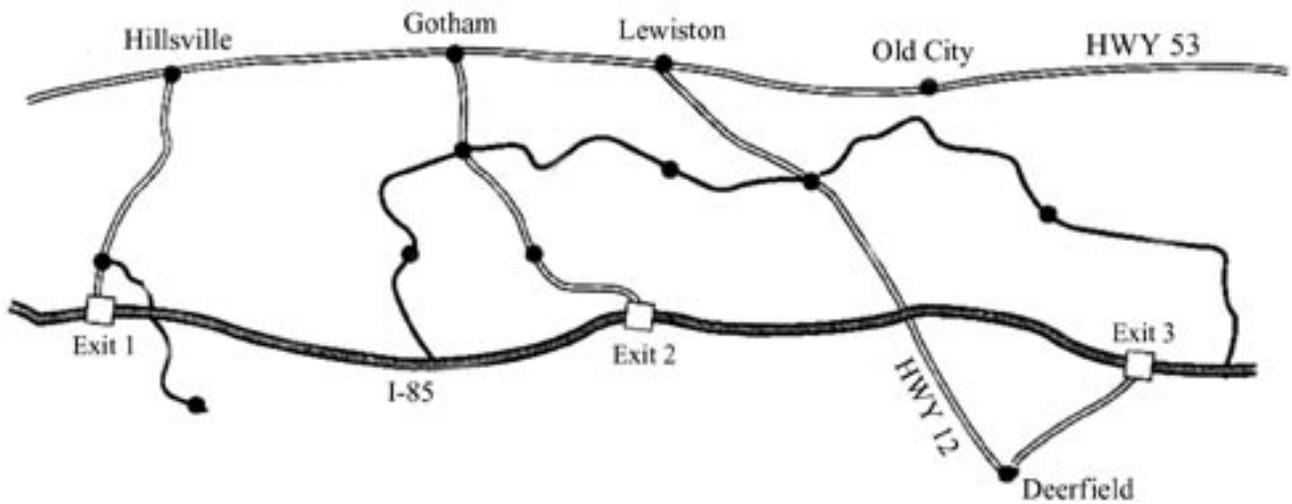# SAMPLE PROBLEMS

9.

The distance between Hillsville and Gotham along Hwy 53 is 60 miles.

a. Use an inch ruler to <u>estimate</u> the scale of the map:

   1 inch on the map represents _____ miles.

b. <u>Estimate</u> these distances:

   Exit 1 to Exit 2 _____   Hillsville to Exit 1 _____

   Gotham to Old City _____   Lewiston to Deerfield _____
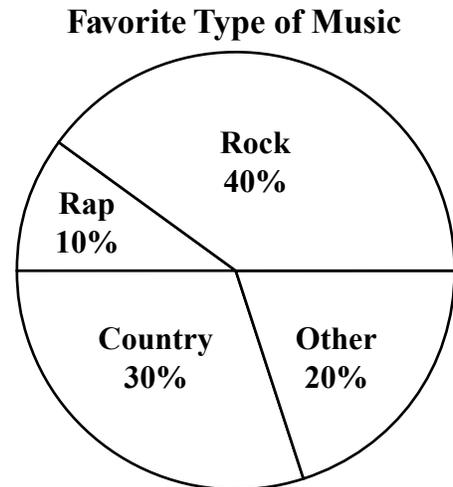
33. **This circle graph represents the results of a survey of 340 people regarding their favorite type of music.**

Favorite Type of Music

Rock 40%

Rap 10%

Country 30%

Other 20%

    a. What <u>fraction</u> of the people said that Rap was their favorite kind of music?

    b. <u>How many</u> people said that Rap was their favorite?

    c. How many people named either Rock or Country as their favorite?

    d. Is it possible that 70 people said that classical music was their favorite? Explain how you got your answer.

35. **AMC Long Distance Company has a special rate on calls made between 11:00 p.m. and 5:00 a.m. The cost is 45¢ for the first two minutes, and 5¢ per minute for each additional minute.**

    a. Mrs. Hebert talked to her son in Chicago from 11:26 p.m. to 12:08 a.m. How much did the call cost?

    b. Tom calls his girlfriend in New York between 11:00 p.m. and 5:00 a.m. How long can they talk for $5.00?

(48.) **An advertisement claims that 4 out of 5 people, who take Zormadrene for migraine headaches, get relief. Assume that this claim is true.**

    a. For every 35 people who take Zormadrene when they have a migraine, how many get relief?

    b. What fraction of the people who take Zormadrene for migraines do not get relief?

    c. What is the ratio of people who get relief when they take Zormadrene for migraines to those who don't get relief?

    d. For every hundred people who take Zormadrene for migraines, how many get relief?

    e. What percent of people who take Zormadrene for migraines get relief?

(61.) **This chart shows the height of three tomato plants 7 days after the seeds sprouted.**

Plant A	$2\frac{1}{8}$ inches
Plant B	$1\frac{3}{4}$ inches
Plant C	$2\frac{5}{16}$ inches

    a. How much taller is plant C than plant A?

    b. What was the average rate of growth in inches-per-day for plant B?

    c. Does this mean that plant B grew that amount on each of the 7 days? Does this tell us anything about how much plant B grew on any of the 7 days? If so, what does it tell us?

    d. If plant B continues to grow at the same average rate, what will be its height in 10 more days?

115. A sprinkling system spreads water over the White House lawn at a <u>steady rate</u> of 300 gallons per hour.

    a. How many gallons-per-minute is this?

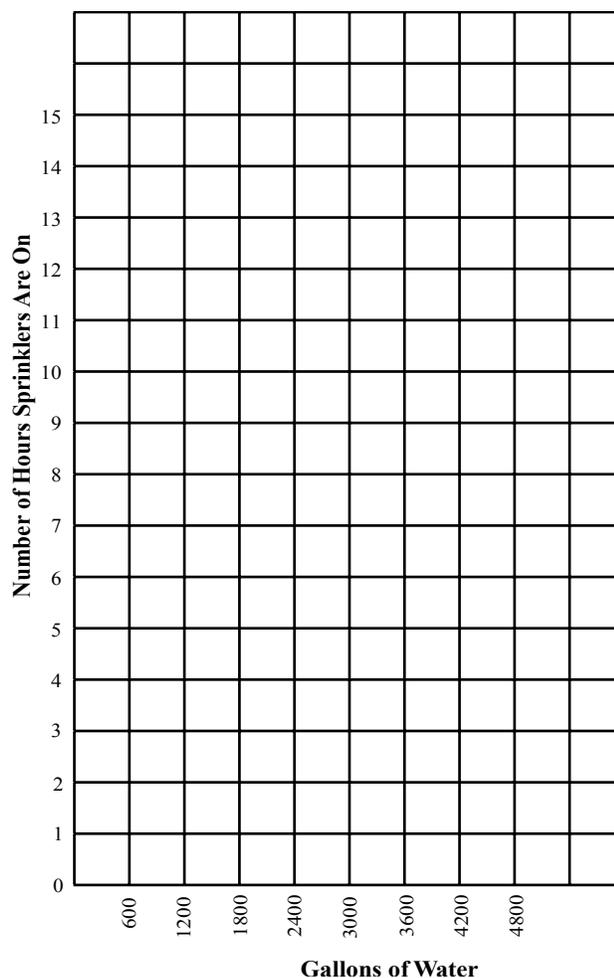   b. Find the numbers of gallons to complete this chart:

Time sprinklers are on (in hours)	1	3	7	10	12
Gallons of water spread over lawn					

    c. Use the copy of the grid below, which your teacher gave you, to plot the data represented in the chart.

    d. Connect the data points that you plotted, in order from left to right.

    e. What kind of figure is this graph?

    f. Use the graph to answer these questions: How many gallons of water are spread in 5 hours? How long will it take to spread 1800 gallons?

Number of Hours Sprinklers Are On

Gallons of Water

99. **These are the weights (rounded to the nearest pound) of the babies born yesterday at Spock Memorial Hospital:**

9 lb, 6 lb, 8 lb, 3 lb, 5 lb, 9 lb, 9 lb, 4 lb, 8 lb, 9 lb, 5 lb, 9 lb, 7 lb

a. What is the <u>mean</u> weight of these babies? (Remember that the <u>mean</u> for a set of numbers is what each number would be if the <u>total amount</u> were <u>distributed equally</u> among them.)

The <u>median</u> for a set of numbers is the middle number when the set is ordered from smallest to largest.

b. What is the median weight for the babies born yesterday at Spock Memorial?

The <u>mode</u> for a set of numbers is the number which is listed most often in the set.

c. What is the <u>mode</u> for the weights of the babies?

d. Suppose you were asked what was the "average" or "typical" weight for these babies. What would you say? Explain why you think this.

Assure students that there is no "right" answer to this question. Any answer which is accompanied by a <u>reasonable</u> explanation is fine. Our purpose is to encourage students to <u>communicate</u> their thinking about mathematics – clearly, and with correct use of words.