

Name _____

5-7B Lesson Master

Questions on SPUR Objectives

See pages 320–323 for objectives.

USES Objective H

A neighborhood car dealership offers seven types of sport utility vehicles and mini vans. The table shows the type and the gas mileage of each vehicle.

| Type of Vehicle | City Gas Mileage | Highway Gas Mileage | Number of Vehicles |
|-----------------|------------------|---------------------|--------------------|
| Large SUV A | 13 | 17 | 6 |
| Large SUV B | 15 | 17 | 9 |
| Large SUV C | 17 | 21 | 5 |
| Mid-size SUV A | 17 | 21 | 12 |
| Mid-size SUV B | 19 | 25 | 10 |
| Small SUV | 21 | 28 | 8 |
| Mini van | 17 | 23 | 20 |

1. What is the relative frequency of a vehicle that has a highway gas mileage of less than 23 miles per gallon? _____
2. What is the relative frequency of a vehicle that has a city gas mileage of more than 17 miles per gallon? _____

A survey on favorite types of pets was taken by students in Emmet's class.

| Favorite Pet | Number of Students | Favorite Pet | Number of Students |
|--------------|--------------------|----------------|--------------------|
| cat | 5 | bird | 0 |
| dog | 10 | hamster/rodent | 6 |
| fish | 7 | reptile | 2 |

3. What is the relative frequency that a favorite pet was *not* a reptile? _____
4. What is the relative frequency that a student's favorite pet was a bird? _____

Here are the responses to a music survey. The question posed was, "Does listening to music improve your mood?"

"always" – 198 responses

"rarely" – 45 responses

"often" – 244 responses

"never" – 27 responses

"sometimes" – 244 responses

5. What is the relative frequency that music improved the responders' mood at least some of the time? _____
6. If the "sometimes" responses were increased to 250, how would this affect the relative frequency in Question 5?

Name

USES

Objective K

The table to the right lists the scores of a standardized test that was given to a group of students.

| Test score | Percentile |
|------------|------------|
| 84 | 90th |
| 76 | 75th |
| 73 | 50th |
| 69 | 25th |
| 62 | 10th |

7. Eugenia’s score on the test fell in the 75th percentile. What was her score?
8. Find possible values of a and b if 40% of the students have scores in the interval $a \leq \text{score} \leq b$.
9. Ralph earned a 67 on the test. Describe his score using the percentiles.

A shoe manufacturer surveyed 1,000 women between the ages of 21 and 35 regarding their shoe size.

| Shoe Size | Percentile |
|-----------|------------|
| 10 | 90th |
| 9 | 75th |
| 8.5 | 50th |
| 8 | 25th |
| 7 | 10th |

10. Describe the meaning of the 50th percentile?
11. Felicity wears a size $9\frac{1}{2}$. Describe her shoe size using percentiles.

Doctors use percentiles to monitor the growth of children. This table represents the growth of a 15-year-old male.

| Height in Inches | Percentile |
|------------------|------------|
| 71 | 90th |
| 69 | 75th |
| 67 | 50th |
| 65 | 25th |
| 63 | 10th |

12. Sergio’s height falls in the 90th percentile. Lorenzo’s height falls in the 50th percentile. Who is taller? Explain.
13. *Fill in the Blank.* About _____% of 15-year-old males are taller than 65 inches.