Name _____ Class _____ Date _____

Reteaching: Section 14-2

Probability Distributions and Frequency Tables

Categorical data can be displayed in a *frequency table*.

The frequency table to the right shows the number of trophies won by 13 members of a karate club. For example, 4 members have won 3, 4, or 5 trophies.

Number of Trophies	Frequency
0–2	6
3–5	4
6–8	3

You can use *relative frequency* to compare the categories, or intervals. Relative frequency is the ratio of the frequency of the category to the total frequency:

$$\text{relative frequency} = \frac{\text{frequency of winning 3, 4, or 5 tropies}}{\text{total frequency}} = \frac{4}{13}$$

The relative frequency of karate club members who won 3-5 trophies is $\frac{4}{13}$.

Relative frequency can be used to determine probability. The probability of randomly choosing a club member who won 6–8 trophies is $\frac{3}{13}$.

Exercises

A student counts the types of vehicles as they enter the school parking lot during a 30-minute period. She records the results in the frequency table below.

Type of Vehicle	Frequency
Car	11
Van	4
Truck	8

1. How many vehicles entered the parking lot during the 30-minute period?

Find the relative frequency for each type of vehicle.

2. Car **3.** Van **4.** Truck

5. What is the probability of randomly choosing a van from the vehicles that entered the parking lot during this 30-minute period?

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Name _____ Class _____ Date _____

Reteaching (continued)

Probability Distributions and Frequency Tables

A *probability distribution* displays the probabilities for all possible outcomes in a sample space.

Problem

Twelve members of the basketball team attempt 3 free throws each. The manager records the results in the probability distribution below.

Free Throws Made	0	1	2	3
Frequency	1	2	6	3
Probability	$\frac{1}{12}$	$\frac{2}{12}$	$\frac{6}{12}$	$\frac{3}{12}$

The sum of the frequencies is equal to the number of players:
$1 + 2 + 6 + 3 = 12$.

The sum of the probabilities is equal to 1: $\frac{1}{12} + \frac{2}{12} + \frac{6}{12} + \frac{3}{12} = \frac{12}{12} = 1$

The probability that a player made 1 free throw is $\frac{2}{12}$, or $\frac{1}{6}$.

Exercises

The number of buttons on each of 10 shirts is shown in the probability distribution at the right.

Number of Buttons	4	5	6
Frequency	1		5
Probability	$\frac{1}{10}$		$\frac{5}{10}$

6. Complete the table.

7. What is the probability that a shirt chosen at random from the set of 10 shirts has 5 buttons?

8. What is the sum of the probabilities?

9. What is the probability of randomly choosing a shirt that has *more than* 4 buttons from the set of 10 shirts?

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