

## 13.2 Probability Distributions and Frequency Tables

### *Learning Targets for today*

- ① To be able to make and use frequency tables.
- ① To be able to make and use probability distributions.
- ① To be able to organize data in tables to find probabilities.

### *Key Concept*

Relative Frequency - the ratio of the frequency of the category to the total frequency.

## Finding Relative Frequency

### Example for you...

The table shows favorite movies types of some students in the high school.

Movie Type	Frequency
Comedy	20
Action	10
Drama	12
Suspense	22

TOTAL = 64

1. What is the relative frequency that a student's favorite movie type is comedy?

$$\frac{20}{64} = .3125 = 31.25\%$$

2. What is the relative frequency that a student likes Action?

$$\frac{10}{64} = .15625 = 15.6\%$$

### Your turn to try...

The table shows the types of cars that are parked in the schools parking lot.

Type of Vehicle	Frequency
Car	11
Van	4
Truck	8

TOTAL = 23

1. What is the relative frequency that a car parked in the parking lots is a truck?

$$\frac{8}{23} = .347 = 35\%$$

2. What is the relative frequency that a car parked in the parking lots is a van?

$$\frac{4}{23} = .1739 = 17\%$$

## Calculating Probability by Using Relative Frequency

### Example for you...

A student conducted a probability experiment using a spinner. Use the results in the table to answer the following questions.



Spinner Result	1	2	3	4
Frequency	29	32	21	18

/100

1. What is the probability that you will land on a 2 on your next spin?

$$P(2) = \frac{32}{100} = .32 = \boxed{32\%}$$

2. What is the probability that you will and on a 3 on your next spin?

$$P(3) = \frac{21}{100} = .21 = \boxed{21\%}$$

### Your turn to try...

A student conducts a probability experiment by tossing a 4 sided colored dice (red, blue, green, yellow). Use the results in the table to answer the following questions.

Number of Throws	Face Landed On			
	Red	Blue	Green	Yellow
520	179	186	75	80

/520

1. What is the probability that you will roll a red?

$$P(\text{red}) = \frac{179}{520} = .34 = \boxed{34\%}$$

2. What is the probability that you will roll a green?

$$P(\text{green}) = \frac{75}{520} = .144 = \boxed{14\%}$$

**Key Concept**

**Probability Distribution** – shows the probability of each possible outcome. Can be shown in a frequency table.

Ex: 12 Basketball players shoot 3 free throws and their coach recorded their results.

<b>Free Throws Made</b>	0	1	2	3
<b>Frequency</b>	1	2	6	3
<b><u>Probability</u></b>	$\frac{1}{12}$	$\frac{2}{12}$	$\frac{6}{12}$	$\frac{3}{12}$

= 12 players

### Finding Probability Distribution

#### Example for you...

1. 15 friends play mini golf and record how many holes-in-one they scored out of 5 attempts. Find the probability of each frequency listed below.

Number of Holes-in-one	0	1	2
Frequency	1	5	4
Probability	$\frac{1}{15}$	$\frac{5}{15}$	$\frac{4}{15}$

3	4	5
3	1	1
$\frac{3}{15}$	$\frac{1}{5}$	$\frac{1}{15}$

#### Your turn to try...

1. If 20 players shot 3 free throws and the coach recorded their scores in the table. Find the probability of each frequency listed below.

Free Throws Made	0	1	2	3
Frequency	3	5	8	4
Probability	$\frac{3}{20}$	$\frac{5}{20}$	$\frac{8}{20}$	$\frac{4}{20}$

= 20 players