

Lesson 14

Course 2-Teacher Notes

Objective: TSW find the probability of an event. TSW write equations for word problems about parts of a whole

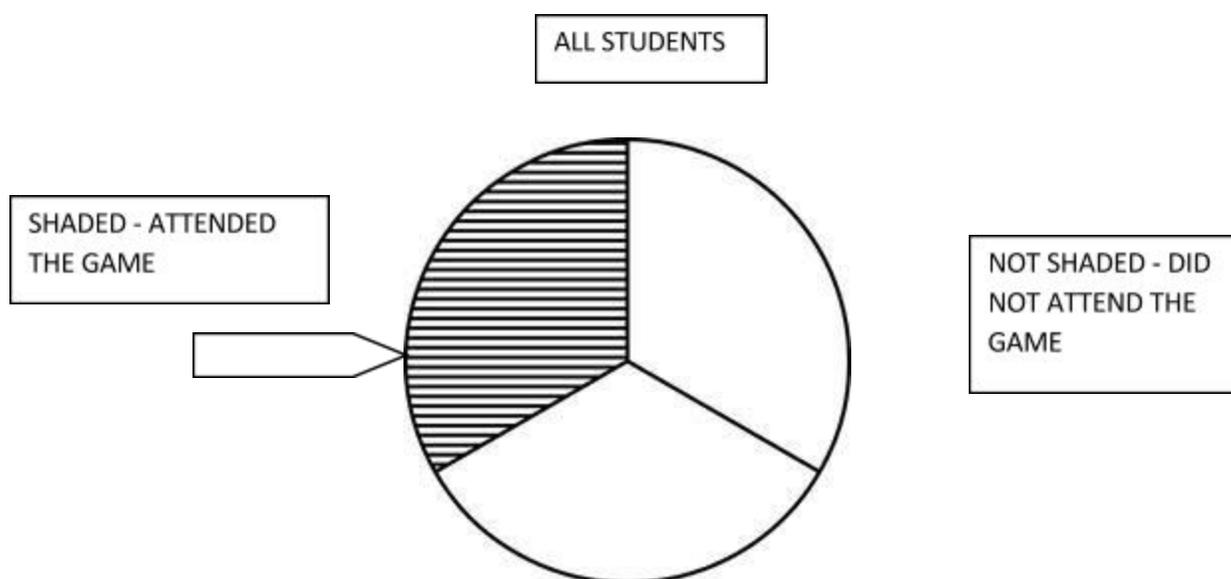
Problems about parts of a whole have an addition thought pattern

$$\text{part} + \text{part} = \text{whole}$$

**Sometimes the parts are expressed as fractions or percents.

Example 1.

One third of the students attended the game. What fraction of the students did not attend the game?



Understand: This problem is about part of the whole. We are given the size of one part and we are asked to find the remaining part.

Plan. Write an equation for the given information

$$\text{Shaded} + \text{Not Shaded} = \text{All Students}$$

Solve.

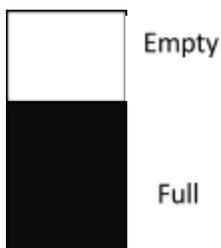
$$\frac{1}{3} + x = \frac{3}{3}$$

$$\frac{3}{3} - \frac{1}{3} = \frac{2}{3}$$

Check: $\frac{1}{3} + \frac{2}{3} = \frac{3}{3}$

Example 2.

Melissa science beaker is 61% full, and part of it is empty. What percent of Melissa's beaker is empty?



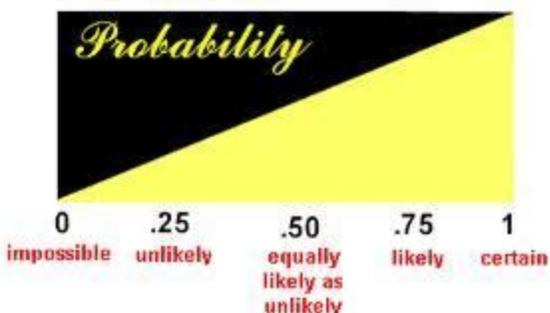
Write the equation:

$$61\% + X = 100\%$$

Solve:

$$100\% - 61\% = 39\% \text{ of Melissa beaker is empty.}$$

Probability is the likelihood that a particular event will occur. Probability is expressed by using the numbers from 0 through 1. The numbers between 0 and 1 can be written as fractions, decimals, or percents.



A probability of 0 represents an event that cannot occur or is impossible.

Ex. Probability that February has 30 days

A probability of 1 represents that an event is certain to occur.

Ex. We will learn lesson 15 tomorrow.

A probability of $1/2$ represents an event is equally like to occur as it is to not occur

Ex. Flipping tails on a coin.

A probability less that $1/2$ means the event is unlikely to occur.

Ex. Mrs. Manty not giving homework tonight

A probably greater than $1/2$ means the event is likely to occur.

Ex. Mrs. Manty giving homework

We can use the following formula to find the probability of an event occurring.

$$\text{Probability (event)} = \frac{\text{Number of favorable outcomes}}{\text{Total number of possible outcomes}}$$

Example 3.

We have a bag that contains 4 red marbles and 5 blue marbles. What is the probability of picking one red marble?

$$\text{Probability (event)} = \frac{\text{Number of favorable outcomes}}{\text{Total number of possible outcomes}}$$

$$\text{Probability (red)} = \frac{4}{9}$$

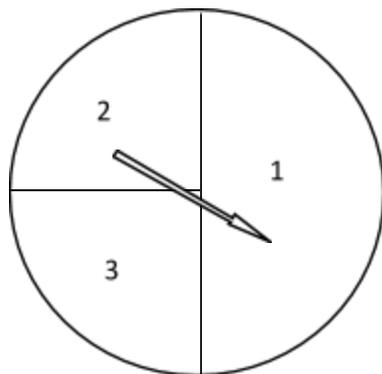
$$\text{Probability (green)} = 0/9$$

Example 4.

A number cube has 1 through 6 dots on the faces of the cube. If the number cube is rolled once, what is the probability of each of these outcomes?

- rolling a 4? $1/6$
- rolling a number greater than 6? $0/6$
- rolling a number less than 7? $6/6 = 1$

Example 5.



The spinner above is divided into one half and two fourths. What is the probability of the spinner stopping the following outcomes?

How many possible outcomes? 3

Are the outcomes equally likely? No. Why? The sizes are not equal.

#1 has $1/2$

#2 has $1/4$

#3 has $1/4$

#2 OR #3? 1/2

#1 or #2? 3/4

CW: 2-5, 30, 1, 6, 18, 19, 22, 29

HW: 1, 7-18, 20-21, 23-28, 30