WALCH PUBLISHING

Daily Warm-Ups

DATA ANALYSIS & PROBABILITY

Maureen Steddin

Level II

SGS-SFI/COC-US09/5501

1 2 3 4 5 6 7 8 9 10

ISBN 978-0-8251-6306-7

J. Weston Walch, Publisher
P.O. Box 658 • Portland, Maine 04104-0658
www.walch.com
Printed in the United States of America

* These sections include problems with higher levels of difficulty.

The *Daily Warm-Ups* series is a wonderful way to turn extra classroom minutes into valuable learning time. The 180 brief activities—one for each day of the school year—practice data analysis and probability skills. These daily activities may be used at the very beginning of class to get students into learning mode, near the end of class to make good educational use of that transitional time, in the middle of class to shift gears between lessons—or whenever else you have minutes that now go unused.

Daily Warm-Ups are easy-to-use reproducibles—simply photocopy the day's activity and distribute it. Or make a transparency of the activity and project it on the board. You may want to use the activities for extra-credit points or as a check on the data analysis and probability skills that are built and acquired over time. These warm-ups include an assortment of data analysis and probability problems addressing various skills and requiring varying degrees of prior knowledge. The problems vary in their level of difficulty and include some sophisticated concepts. The time it takes to complete each warm-up will also vary. Use your best judgment about their role in your data analysis and probability instruction.

However you choose to use them, *Daily Warm-Ups* are a convenient and useful supplement to your regular lesson plans. Make every minute of your class time count!

Daily Warm-Ups: Data Analysis & Probability

Simple Probability

Probability is the likelihood that a certain event will occur, expressed mathematically. It is calculated using this formula:

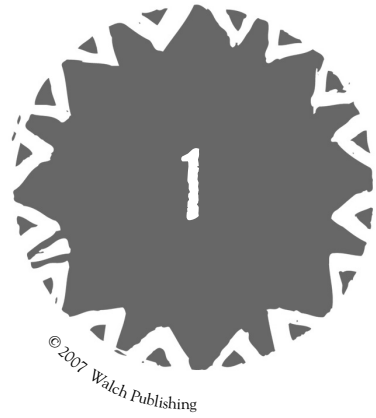
$$\text{probability} = \frac{\text{desired outcomes}}{\text{possible outcomes}}$$

Solve each problem below.

1. A drawer contains 5 blue socks, 4 white socks, and 2 black socks. If a sock is removed at random from the drawer, what is the probability that it will be black?

2. If a sock is removed at random from the drawer, what is the probability that it will be blue?

3. If a sock is removed at random from the drawer, what is the probability that it will be white?



Ice Pop Probability

Solve each problem below.

1. A cooler contains only grape, cherry, and lemon ice pops. If the ratio of grape to cherry to lemon pops is 2:3:4, what is the probability that an ice pop removed at random is cherry?

2. What is the probability that an ice pop removed at random is either lemon or grape?

Spelling Probability

Answer the following.

1. A letter from the word *probable* is selected at random. What is the probability that the letter is a *b*?

2. What is the probability that the letter is a consonant?

3. Write a word for which the probability of selecting the letter *p* at random is $\frac{1}{4}$.

4. Write a 6-letter word and determine the probability of selecting each different letter at random.

Figuring Probability

Solve each problem below.

1. A side of pentagon *ABCDE* is selected at random and outlined in red. What is the probability that side *CD* is outlined in red?

2. A point is drawn at random on the coordinate axes. What is the probability that its *x*-coordinate is negative?

3. One of the angles of an isosceles right triangle is selected at random. What is the probability that it is an acute angle?

Writing Probability in Simplest Form

Probability is often expressed as a fraction. When this is the case, it should always be reduced to simplest terms.

Solve each problem below.

1. A jar contains 15 red, 6 green, and 3 yellow marbles. If a marble is removed at random from the jar, what is the probability that it will be green?

2. If a marble is removed at random from the jar, what is the probability that it will be yellow?

3. If a marble is removed at random from the jar, what is the probability that it will be red?

Working Back from a Given Probability

Sometimes a problem will give you the probability and ask you for other information about the situation.

Solve each problem below.

1. There are 42 students in the school ecology club. The club contains only sophomores, juniors, and seniors. A student will be selected to represent the club at an upcoming event. If the probability that a senior will be selected is $\frac{5}{14}$, how many seniors are in the club?

2. If there are 18 juniors in the club, what is the probability that a sophomore will be selected?

Daily Warm-Ups: Data Analysis & Probability

Expressing Probability

Probability is usually expressed as a fraction, but it can also be written as a decimal or a percent.

Answer the following.

1. If there is a 3 in 8 chance that an event will occur, the probability that it will occur can be written as

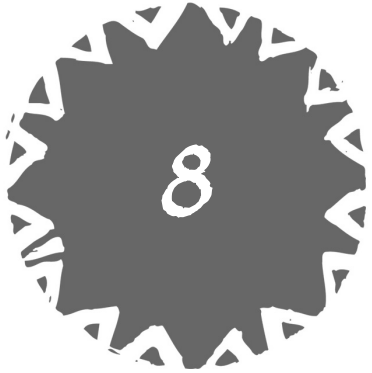
   _____ = _____ = _____
   fraction decimal percent

2. Ms. Federman has 25 students in her fourth-period math class. She selects one student at random to solve a problem on the board. If there is a 40% chance that the student selected is a girl, how many boys are in the class?

7

A Game of Chance

Anya is playing a game of chance at a carnival. There are 12 cups on the counter, and she will win whatever is underneath the cup she selects. Each cup either contains nothing, a booby prize, or a stuffed pig. There is a 50% chance that the cup will be empty. There is a $\frac{1}{3}$ chance that the cup contains a booby prize. How many of the cups contain a stuffed pig?



Range of Probability

The probability of any event occurring ranges from 0 to 1. If the probability is 0, the event is impossible. If the probability is 1, the event is certain to occur.

Solve each problem below.

1. What is the probability that an angle selected at random from a right triangle will be an obtuse angle?

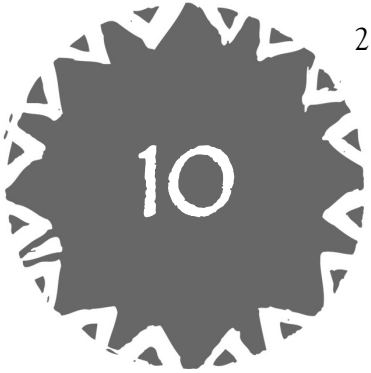
2. What is the probability that a number selected at random from the set {15, 2, 30, 5, 6} will be a factor of 60?

Go for a Spin

A spinner consists of 12 equal regions, each of which is labeled with a different number which is less than or equal to 20. Some of the regions are blue and some are yellow. The probability that the spinner lands on a region labeled with a prime number is 0. The probability that the spinner lands on a positive number is 1. The probability that the spinner lands on a blue region is 75%.

Answer the following.

1. Are there more blue or yellow regions on the spinner?



2. How many yellow regions are there?

3. Is it possible for the spinner to land on the number 2?

4. Is it possible for the spinner to land on the number 0?

Pick of the Litter

The closer a probability is to 1, the more likely that this event will occur.

A cat is going to have a litter of kittens. There is a 0.25 probability that a kitten in the litter will be orange and a $\frac{3}{8}$ probability that a kitten will be black. Is a kitten in this litter more likely to be orange or black?