LESSON MAKER PRO

Chance in Action

Use probability to predict repeated results.

GRADE 8 · MA.8.DP.2.3

MA.8.DP.2.3 "Solve real-world problems involving probabilities related to single or repeated experiments, including making predictions based on theoretical probability."

NAME _____ DATE _____

PROBABILITY MOVES

For equally likely outcomes, probability is favorable outcomes divided by total outcomes. For independent repeated events, multiply the probabilities of the events in order. To predict an expected number of outcomes, multiply the number of trials by the probability of one outcome.

WORKED EXAMPLE

A fair spinner has 13 equal sections. Five sections show a leaf. What is the probability of landing on a leaf on both spins?

1. The probability of a leaf on one spin is 5/13.
2. The spins are independent, so multiply: 5/13 x 5/13.
3. Multiply to get 25/169.

Answer: 25/169

PRACTICE 6 problems

1 A fair coin is flipped once. What is the probability of tails?

ANSWER _____

2 A fair spinner has 8 equal sections, and 3 sections are purple. What is the probability of purple?

ANSWER _____

3 A standard number cube is rolled twice. What is the probability of rolling an even number on both rolls?

ANSWER _____

4 A random code uses one digit from 0 through 9, with each digit equally likely. What is the probability that the digit is greater than 6?

ANSWER _____

5 A bag holds 9 identical tokens: 2 orange and 7 black. You select one token, replace it, and select another token. What is the probability of selecting orange both times?

ANSWER _____

6 A video game gives a bonus on each round with probability 1/3. The rounds are independent. You play twice. What is the probability of getting exactly one bonus?

ANSWER _____

APPLY IT Show your work

1 At a gaming club, a prize wheel has 12 equal spaces. Three spaces award a free game pass. Jordan spins the wheel 4 times, and the wheel resets after each spin. Based on theoretical probability, predict how many free game passes Jordan will win.

WORK SPACE

ANSWER _____

2 A digital art app has 14 sticker designs, and 2 designs are rare. A student opens 3 mystery packs. Each design is equally likely in each pack, and designs can repeat. What is the probability that exactly one sticker is rare?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A streaming app randomly plays one of 4 equally likely playlists for each song. You like exactly 1 of the playlists. The app plays 4 songs, and selections are independent. What is the probability that you like exactly 2 songs?

WORK SPACE AND ANSWER

ANSWER KEY

Chance in Action

GRADE 8 · MA.8.DP.2.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A fair coin is flipped once. What is the probability of tails?	**1/2**
2	A fair spinner has 8 equal sections, and 3 sections are purple. What is the probability of purple?	**3/8**
3	A standard number cube is rolled twice. What is the probability of rolling an even number on both rolls?	**1/4**
4	A random code uses one digit from 0 through 9, with each digit equally likely. What is the probability that the digit is greater than 6?	**3/10**
5	A bag holds 9 identical tokens: 2 orange and 7 black. You select one token, replace it, and select another token. What is the probability of selecting orange both times?	**4/81**
6	A video game gives a bonus on each round with probability 1/3. The rounds are independent. You play twice. What is the probability of getting exactly one bonus?	**4/9**

PART 2 · APPLY IT

1. **1 free game pass** The probability of a pass on one spin is 3/12, or 1/4. Multiply 4 x 1/4 to predict 1 free game pass.
2. **108/343** The rare sticker can occur in any of 3 pack positions. Calculate 3 x 1/7 x 6/7 x 6/7 = 108/343.

CHALLENGE

27/128

Accept equivalent fractions when they represent the same probability, but simplified fractions are preferred. For the prediction problem, accept "1" if the student clearly identifies it as one free game pass.