LESSON MAKER PRO

Probability Replay

Find chances across repeated trials.

GRADE 8 · MA.8.DP.2.2

MA.8.DP.2.2 "Find the theoretical probability of an event related to a repeated experiment."

NAME _____ DATE _____

MULTIPLY INDEPENDENT TRIALS

In a repeated experiment, if each trial is independent, multiply the probabilities when events must happen in a stated order or on every trial. When an event can happen in different orders, count or add the probabilities for all possible orders.

WORKED EXAMPLE

A spinner has 13 equal sections. Nine sections are gold. It is spun twice. What is the theoretical probability of landing on gold both times?

1. P(gold on one spin) = 9/13.
2. Multiply for two independent spins: 9/13 x 9/13.
3. 9/13 x 9/13 = 81/169.

Answer: 81/169

PRACTICE 6 problems

1 A fair coin is tossed 3 times. What is the theoretical probability of getting tails on all 3 tosses?

ANSWER _____

2 A fair number cube is rolled twice. What is the theoretical probability of rolling an even number on both rolls?

ANSWER _____

3 A spinner has 10 equal sections, and 2 sections have stars. What is the theoretical probability of spinning a star on both of 2 spins?

ANSWER _____

4 A bag has 12 tokens. Five are orange. A token is selected, returned, and then another token is selected. What is the theoretical probability of selecting orange, then not orange?

ANSWER _____

5 A random digit from 0 through 5 is selected, recorded, and returned. This happens twice. What is the theoretical probability of selecting 0 both times?

ANSWER _____

6 A fair coin is tossed 4 times. What is the theoretical probability of getting exactly 3 heads?

ANSWER _____

APPLY IT Show your work

1 A music app has a playlist of 15 songs, and 6 are by your favorite artist. A song is selected, returned to the playlist, and then another song is selected. What is the theoretical probability that both selected songs are by your favorite artist?

WORK SPACE

ANSWER _____

2 A mobile game prize wheel has 20 equal slots. Eight slots award a limited-edition avatar item. A player spins the wheel twice. What is the theoretical probability of winning the avatar item on both spins?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A fair coin is tossed 5 times. What is the theoretical probability of getting exactly 2 heads? Explain how you counted the possible orders.

WORK SPACE AND ANSWER

ANSWER KEY

Probability Replay

GRADE 8 · MA.8.DP.2.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A fair coin is tossed 3 times. What is the theoretical probability of getting tails on all 3 tosses?	**1/8**
2	A fair number cube is rolled twice. What is the theoretical probability of rolling an even number on both rolls?	**1/4**
3	A spinner has 10 equal sections, and 2 sections have stars. What is the theoretical probability of spinning a star on both of 2 spins?	**1/25**
4	A bag has 12 tokens. Five are orange. A token is selected, returned, and then another token is selected. What is the theoretical probability of selecting orange, then not orange?	**35/144**
5	A random digit from 0 through 5 is selected, recorded, and returned. This happens twice. What is the theoretical probability of selecting 0 both times?	**1/36**
6	A fair coin is tossed 4 times. What is the theoretical probability of getting exactly 3 heads?	**1/4**

PART 2 · APPLY IT

1. **4/25** The probability on each selection is 6/15. Multiply 6/15 x 6/15 and simplify to get 4/25.
2. **4/25** The probability of the item on one spin is 8/20. Multiply 8/20 x 8/20 and simplify to get 4/25.

CHALLENGE

5/16

Accept equivalent fractions and correct unsimplified products. For events described as exactly a number of outcomes, accept work that accounts for every possible order.