LESSON MAKER PRO

Chance Check

Find the probability before the event happens.

GRADE 7 · 7.PS.1.a

7.PS.1.a "Determine the theoretical probability of an event."

NAME _____ DATE _____

THE BIG IDEA

Theoretical probability tells how likely an event is when all outcomes have an equal chance. Divide the number of favorable outcomes by the total number of equally likely outcomes. Write your fraction in simplest form.

WORKED EXAMPLE

A jar has 11 equally likely tickets. 4 tickets say "art." What is the probability of choosing an art ticket?

1. Favorable outcomes: 4 art tickets.
2. Total equally likely outcomes: 11 tickets.
3. Probability = 4/11.

Answer: 4/11

PRACTICE 6 problems

1 A bag has 8 equally likely marbles, and 3 are silver. What is the probability of choosing a silver marble?

ANSWER _____

2 A spinner has 9 equal sections, and 2 sections are green. What is the probability of spinning green?

ANSWER _____

3 A raffle has 14 equally likely tickets, and 6 tickets win a prize. What is the probability of choosing a winning ticket?

ANSWER _____

4 A playlist has 15 songs. Ten songs are instrumental and the rest have vocals. If each song is equally likely to play next, what is the probability that the next song has vocals?

ANSWER _____

5 Ten identical-backed cards are equally likely to be chosen. Seven cards show a sport, and the rest show a hobby. What is the probability of choosing a card that does not show a sport?

ANSWER _____

6 A club has 18 equally likely badge designs to choose from. Nine designs are red. What is the probability of choosing a red design?

ANSWER _____

APPLY IT Show your work

1 A game reward wheel has 20 equal sections. Eight sections give a bonus item, and the other sections give coins. What is the theoretical probability of landing on a bonus item?

WORK SPACE

ANSWER _____

2 For a school art showcase, a student council member randomly chooses 1 of 24 entries to feature online. Nine entries are digital artwork. What is the theoretical probability that the featured entry is digital artwork?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A bag contains 7 blue tokens, 9 green tokens, and 12 yellow tokens. Each token is equally likely to be chosen. What is the probability of choosing a blue or yellow token? Explain how you found the number of favorable outcomes.

WORK SPACE AND ANSWER

ANSWER KEY

Chance Check

GRADE 7 · 7.PS.1.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A bag has 8 equally likely marbles, and 3 are silver. What is the probability of choosing a silver marble?	**3/8**
2	A spinner has 9 equal sections, and 2 sections are green. What is the probability of spinning green?	**2/9**
3	A raffle has 14 equally likely tickets, and 6 tickets win a prize. What is the probability of choosing a winning ticket?	**3/7**
4	A playlist has 15 songs. Ten songs are instrumental and the rest have vocals. If each song is equally likely to play next, what is the probability that the next song has vocals?	**1/3**
5	Ten identical-backed cards are equally likely to be chosen. Seven cards show a sport, and the rest show a hobby. What is the probability of choosing a card that does not show a sport?	**3/10**
6	A club has 18 equally likely badge designs to choose from. Nine designs are red. What is the probability of choosing a red design?	**1/2**

PART 2 · APPLY IT

1. **2/5** There are 8 bonus sections out of 20 equal sections, so the probability is 8/20 = 2/5.
2. **3/8** There are 9 digital entries out of 24 total entries, so the probability is 9/24 = 3/8.

CHALLENGE

19/28; There are 7 + 12 = 19 favorable blue or yellow tokens out of 28 total tokens.

Accept equivalent fractions, such as 6/12 for 1/2, when students correctly identify favorable and total outcomes. Students should simplify fractions unless the probability is already in simplest form.