LESSON MAKER PRO

Chance in Three Forms

Find the chance, then show it three ways.

GRADE 7 · 7.D.2.1

7.D.2.1 "Determine the theoretical probability of an event using the ratio between the size of the event and the size of the sample space; represent probabilities as percents, fractions and decimals between 0 and 1."

NAME _____ DATE _____

THE BIG IDEA

When each outcome is equally likely, probability is favorable outcomes divided by all possible outcomes. Write that ratio as a fraction, divide to get a decimal, and multiply the decimal by 100 to get a percent.

WORKED EXAMPLE

A bag holds the tiles shown. One tile is picked at random. Find P(green) as a fraction, decimal, and percent.

TILES IN THE BAG

Color	Tiles
Green	9
Gold	11

1. Count all tiles: 9 + 11 = 20.
2. Write the ratio: 9/20.
3. Divide: 9 ÷ 20 = 0.45.
4. Convert to a percent: 0.45 × 100 = 45%.

Answer: 9/20, 0.45, 45%

PRACTICE 4 problems

1 A box holds 1 silver coin and 4 bronze coins. Pick one at random. Find P(silver) as a fraction and decimal.

ANSWER _____

2 A deck holds 3 music cards and 7 art cards. Pick one at random. Find P(music) as a decimal and percent.

ANSWER _____

3 A bag holds 7 star tokens and 7 heart tokens. Pick one at random. Find P(star) as a fraction, decimal, and percent.

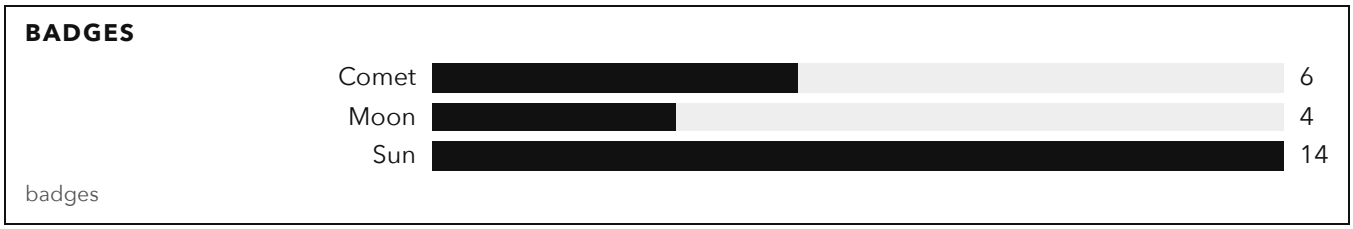
ANSWER _____

4 A spinner has 5 equal sections, and 2 are striped. What percent of spins should land on striped?

ANSWER _____

APPLY IT Show your work

1 A game awards one badge chosen at random from the badges shown. Find P(comet) as a fraction, decimal, and percent.



ANSWER _____

2 A music app shuffles 40 songs. Each song is equally likely to play first, and 14 are pop songs. Find P(pop first) as a fraction, decimal, and percent.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game has 40 equally likely prize cards. There are 12 sticker cards and 4 bonus cards. The rest are wallpaper cards. Find P(wallpaper) as a fraction, decimal, and percent. Explain how you counted the wallpaper cards.

WORK SPACE AND ANSWER

ANSWER KEY

Chance in Three Forms

GRADE 7 · 7.D.2.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A box holds 1 silver coin and 4 bronze coins. Pick one at random. Find P(silver) as a fraction and decimal.	**1/5, 0.2**
2	A deck holds 3 music cards and 7 art cards. Pick one at random. Find P(music) as a decimal and percent.	**0.3, 30%**
3	A bag holds 7 star tokens and 7 heart tokens. Pick one at random. Find P(star) as a fraction, decimal, and percent.	**1/2, 0.5, 50%**
4	A spinner has 5 equal sections, and 2 are striped. What percent of spins should land on striped?	**40%**

PART 2 · APPLY IT

1. **1/4, 0.25, 25%** There are 6 comet badges out of 24 badges. Simplify 6/24 to 1/4, then convert it to 0.25 and 25%.
2. **7/20, 0.35, 35%** The probability is 14/40, which simplifies to 7/20. Dividing gives 0.35, or 35%.

CHALLENGE

40 - 12 - 4 = 24 wallpaper cards. P(wallpaper) = 24/40 = 3/5 = 0.6 = 60%.

Accept equivalent fractions, such as 6/24 for the badge problem, and equivalent decimals, such as 0.50 for 0.5.