LESSON MAKER PRO

Chance in Action

Find probability from outcomes and area.

GRADE 7 · 7.D.2.2

7.D.2.2 "Calculate probability as a fraction of sample space or as a fraction of area. Express probabilities as percents, decimals, and fractions."

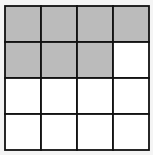
NAME _____ DATE _____

THE BIG IDEA

When outcomes are equally likely, probability is the number of outcomes you want divided by the total number of outcomes. For a region split into equal-size parts, use the number of parts you want divided by all the parts. Divide to write a fraction as a decimal, then multiply by 100 to write a percent.

WORKED EXAMPLE

A point lands at random on this board. What is the probability it lands on a shaded square? Write a fraction, decimal, and percent.



1. There are 7 shaded squares out of 16 equal-size squares, so the fraction is 7/16.
2. Divide: 7 ÷ 16 = 0.4375.
3. Multiply by 100: 0.4375 × 100 = 43.75%.

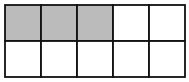
Answer: 7/16, 0.4375, 43.75%

PRACTICE 6 problems

1 A bag holds 2 red tickets and 3 blue tickets. You pick one ticket without looking. What is the probability it is red? Write a fraction.

ANSWER _____

2 A point lands at random on this board. What is the probability it lands on a shaded square? Write a decimal.



ANSWER _____

3 One sticker is picked at random from the collection in the table. What is the probability it is orange? Write a percent.

STICKER COLLECTION

Color	Number
Green	6
Orange	9
Purple	5

ANSWER _____

4 A point lands at random on this strip. What is the probability it lands in a shaded section? Write a fraction in simplest form.



ANSWER _____

5 You roll a fair number cube labeled 1 through 6. What is the probability of rolling an odd number? Write a fraction in simplest form and a percent.

ANSWER _____

_____

6 A playlist shuffles 25 songs. Of these, 10 are rock songs and 15 are pop songs. What is the probability the next song is rock? Write a decimal and a percent.

ANSWER _____

_____

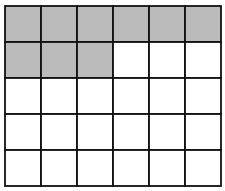
APPLY IT Show your work

1 A gaming app gives you one of 20 equally likely badges. Of these, 3 are rare. What is the probability of getting a rare badge? Write a fraction, decimal, and percent.

WORK SPACE

ANSWER _____

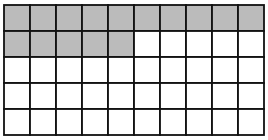
2 You tap a random point on this game board. Each square has the same area. What is the probability your tap lands on a shaded square? Write a fraction in simplest form, a decimal, and a percent.



ANSWER _____

CHALLENGE One step up

On this board, some unshaded squares will be colored in. How many must be colored so that a random point on the board has a 1/2 chance of landing on a shaded square? Explain your reasoning.



WORK SPACE AND ANSWER

ANSWER KEY

Chance in Action

GRADE 7 · 7.D.2.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A bag holds 2 red tickets and 3 blue tickets. You pick one ticket without looking. What is the probability it is red? Write a fraction.	**2/5**
2	A point lands at random on this board. What is the probability it lands on a shaded square? Write a decimal.	**0.3**
3	One sticker is picked at random from the collection in the table. What is the probability it is orange? Write a percent.	**45%**
4	A point lands at random on this strip. What is the probability it lands in a shaded section? Write a fraction in simplest form.	**3/5**
5	You roll a fair number cube labeled 1 through 6. What is the probability of rolling an odd number? Write a fraction in simplest form and a percent.	**1/2 and 50%**
6	A playlist shuffles 25 songs. Of these, 10 are rock songs and 15 are pop songs. What is the probability the next song is rock? Write a decimal and a percent.	**0.4 and 40%**

PART 2 · APPLY IT

1. **3/20, 0.15, 15%** There are 3 rare badges out of 20 possible badges. Divide 3 by 20, then convert the decimal to a percent.
2. **3/10, 0.3, 30%** The board has 30 squares, and 9 are shaded, so the probability is 9/30 = 3/10. Convert 3/10 to 0.3 and 30%.

CHALLENGE

10 squares. Half of the 50 squares is 25, so 25 - 15 = 10 more squares must be shaded.

Accept equivalent fractions where simplest form is not requested. Probabilities based on area assume a point is equally likely to land anywhere on the board or strip.