LESSON MAKER PRO

What Are the Odds?

Find probabilities and describe what they mean.

GRADE 7 · 7.SP.5

7.SP.5 "Find and interpret the probability of a random event. Understand that the probability of a random event is a number between, and including, 0 and 1 that expresses the likelihood of the event occurring."

NAME _____ **DATE** _____

FINDING PROBABILITY

When each object is equally likely to be picked, P(event) = number of matching objects / total number of objects. Every probability is between 0 and 1, including 0 and 1. A probability of 0 means impossible, 1 means certain, and a probability greater than 1/2 means more likely than not.

WORKED EXAMPLE

A bag holds 7 yellow tokens and 13 purple tokens. You pick one without looking. Find P(yellow) and describe how likely it is.

1. Count all the tokens: 7 + 13 = 20.
2. Count the yellow tokens: 7.
3. P(yellow) = 7/20.
4. Since 7/20 is less than 1/2, picking yellow is unlikely.

Answer: 7/20; unlikely

PRACTICE 6 problems

1 A bag has 2 red beads and 9 blue beads. You pick one without looking. What is P(red)?

ANSWER _____

2 A bag holds 4 green tokens and 6 gold tokens. You pick one without looking. What is P(purple)?

ANSWER _____

3 A box holds 10 white tiles and no other tiles. You pick one without looking. What is P(white)?

ANSWER _____

4 A stack has 4 star cards and 5 circle cards. You shuffle and draw one. What is P(star)?

ANSWER _____

5 The table shows the songs in a playlist. A song plays at random. What is P(rock)?

PLAYLIST

Type of song	Number of songs
Rock	6
Jazz	2
Rap	4

ANSWER _____

6 A jar holds 3 green marbles and 9 orange marbles. You draw one without looking. Find P(green) and say whether drawing green is likely or unlikely.

ANSWER _____

APPLY IT Show your work

1 A mystery sticker pack contains 9 action-game stickers and 6 puzzle-game stickers. You get one sticker at random. What is P(action-game sticker)? Is getting one more likely than not?

WORK SPACE

ANSWER _____

2 A game gives you one reward at random from those shown in the table. What is P(epic reward)? Describe how likely it is.

GAME REWARDS

Reward	Number available
Regular	10
Rare	4
Epic	2

ANSWER _____

CHALLENGE One step up

A ticket is drawn at random from the tickets in the table. Which is more likely: drawing a purple or teal ticket, or drawing a ticket that is not orange? Find both probabilities and explain your choice.

TICKETS

Color	Number of tickets
Purple	2
Teal	4
Orange	6
Black	4

WORK SPACE AND ANSWER

ANSWER KEY

What Are the Odds?

GRADE 7 · 7.SP.5

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A bag has 2 red beads and 9 blue beads. You pick one without looking. What is P(red)?	**2/11**
2	A bag holds 4 green tokens and 6 gold tokens. You pick one without looking. What is P(purple)?	**0**
3	A box holds 10 white tiles and no other tiles. You pick one without looking. What is P(white)?	**1**
4	A stack has 4 star cards and 5 circle cards. You shuffle and draw one. What is P(star)?	**4/9**
5	The table shows the songs in a playlist. A song plays at random. What is P(rock)?	**1/2**
6	A jar holds 3 green marbles and 9 orange marbles. You draw one without looking. Find P(green) and say whether drawing green is likely or unlikely.	**1/4; unlikely**

PART 2 · APPLY IT

1. **3/5; yes, it is more likely than not.** There are 15 stickers, so P(action-game sticker) = 9/15 = 3/5. Since 3/5 > 1/2, getting one is more likely than not.
2. **1/8; unlikely** There are 16 rewards, and 2 are epic, so P(epic) = 2/16 = 1/8. This is less than 1/2, so an epic reward is unlikely.

CHALLENGE

P(purple or teal) = 6/16 = 3/8. P(not orange) = 10/16 = 5/8. Not orange is more likely because 5/8 > 3/8.

Accept equivalent fractions and decimals. For likelihood descriptions, accept wording that clearly compares the probability with 1/2.