

Chance Checkpoint

Build probability models from equally likely outcomes.

GRADE 7 • 7.PR.6

7.PR.6 "Using mathematical reasoning, investigate chance processes and develop, evaluate, and use probability models to find probabilities of simple events presented in authentic situations."

NAME _____

DATE _____

MODEL THE CHANCE

When outcomes are equally likely, probability is favorable outcomes / total outcomes. Count the outcomes that match the event, divide by all possible outcomes, and simplify the fraction.

WORKED EXAMPLE

A game app randomly selects one of 13 equal prize icons. Five icons show a star. What is $P(\text{star})$?

1. Favorable outcomes: 5 star icons.
2. Total outcomes: 13 prize icons.
3. $P(\text{star}) = 5/13$.

Answer: 5/13

PRACTICE 6 problems

- 1** A spinner has 12 equal sections. Three sections are orange. What is $P(\text{orange})$?

ANSWER _____

- 2** A bag holds 8 same-sized tokens. Two tokens have triangles, and the rest have circles. What is $P(\text{triangle})$?

ANSWER _____

- 3** You flip a fair coin once. What is $P(\text{heads})$?

ANSWER _____

- 4** You roll a standard fair number cube once. What is $P(\text{rolling an odd number})$?

ANSWER _____

- 5** A playlist app randomly chooses 1 of 21 songs. Nine songs are instrumental. What is $P(\text{instrumental})$?

ANSWER _____

- 6** A calendar app randomly displays one month of the year. What is $P(\text{the month has 31 days})$?

ANSWER _____

APPLY IT Show your work

- 1** A library audiobook app has 16 featured titles. Six titles are mysteries. The app randomly recommends one featured title. What is the probability that it recommends a mystery?

WORK SPACE

ANSWER _____

- 2** A robotics club giveaway has 27 entries. Twelve entries belong to seventh graders, and the rest belong to eighth graders. One entry is chosen at random. What is the probability that a seventh grader wins?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Two game booths each use a fair prize wheel with equal sections. Booth A has 18 sections, with 6 prize sections. Booth B has 24 sections, with 9 prize sections. Which booth gives you a greater probability of winning a prize? Explain by comparing the probabilities.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A spinner has 12 equal sections. Three sections are orange. What is $P(\text{orange})$?	$1/4$
2	A bag holds 8 same-sized tokens. Two tokens have triangles, and the rest have circles. What is $P(\text{triangle})$?	$1/4$
3	You flip a fair coin once. What is $P(\text{heads})$?	$1/2$
4	You roll a standard fair number cube once. What is $P(\text{rolling an odd number})$?	$1/2$
5	A playlist app randomly chooses 1 of 21 songs. Nine songs are instrumental. What is $P(\text{instrumental})$?	$3/7$
6	A calendar app randomly displays one month of the year. What is $P(\text{the month has 31 days})$?	$7/12$

PART 2 • APPLY IT

- $3/8$** There are 6 favorable mystery titles out of 16 total titles. The probability is $6/16 = 3/8$.
- $4/9$** There are 12 seventh-grade entries out of 27 total entries. The probability is $12/27 = 4/9$.

CHALLENGE

Booth B. Booth A has $P(\text{prize}) = 6/18 = 1/3 = 8/24$. Booth B has $P(\text{prize}) = 9/24$, and $9/24 > 8/24$.

Accept equivalent fractions for all probability answers, although simplified fractions are preferred. For the challenge, accept any correct comparison that shows Booth B has the greater probability.