LESSON MAKER PRO

Chance Checkpoint

Use models and data to make probability predictions.

GRADE 7 · TEKS 7.6

7.6 "Proportionality. The student applies mathematical process standards to use probability and statistics to describe or solve problems involving proportional relationships..."

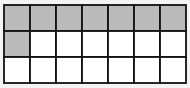
NAME _____ DATE _____

PROBABILITY PLANS

For equally likely outcomes, probability is favorable outcomes divided by total outcomes. A sample space lists every possible outcome. Experimental probability uses results from trials, while theoretical probability uses the model.

WORKED EXAMPLE

At a game booth, a visitor randomly receives one prize-board square. Shaded squares earn a pin. What is the theoretical probability of earning a pin? Each square is equally likely.

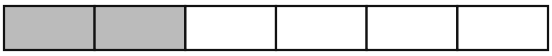


1. Count 21 equal squares.
2. Count 8 shaded squares.
3. Write favorable/total: 8/21.

Answer: 8/21

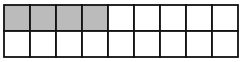
PRACTICE 4 problems

1 A reading app randomly reveals one equal coupon card from the figure. A shaded card gives a bonus bookmark. What is the probability of a bonus bookmark? Each displayed card or tile is equally likely.



ANSWER _____

2 A school store tablet randomly shows one equal coupon tile from the figure. A shaded tile gives a free sticker. What is the probability that a tile does not give a sticker? Each displayed card or tile is equally likely.



ANSWER _____

3 An esports club tested a random loot box 25 times. It gave a rare item 9 times. Use experimental probability to predict the number of rare items in 100 openings.

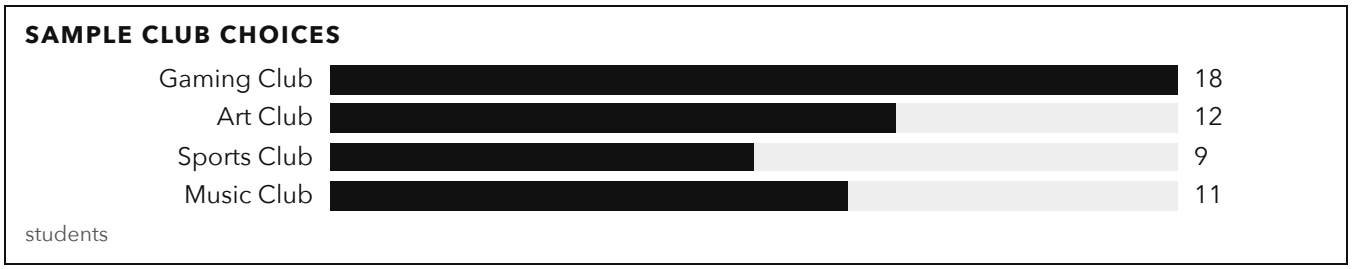
ANSWER _____

4 A music app randomly picks 1 of 5 genres and 1 of 2 moods. Every pair is equally likely. What is the probability it picks hip-hop and calm?

ANSWER _____

APPLY IT Show your work

1 The graph shows club choices from a random sample of students. If the school has 300 students, estimate how many would choose Music Club.



ANSWER

2 For a fundraiser, students ran a game 60 times in a trial. Players won 15 times. Use experimental probability to predict wins in 180 plays.

CHALLENGE One step up

A robot randomly chooses a paint color, red or blue, then a stamp, star or dot. List the sample space. Find the theoretical probability of blue dot. In 40 runs, blue dot appeared 9 times. Use theoretical probability to predict blue dots in 400 runs, and explain why the trial result may differ. Both colors are equally likely; both stamps are equally likely; the color and stamp choices are independent.

ANSWER KEY

Chance Checkpoint

GRADE 7 · TEKS 7.6

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A reading app randomly reveals one equal coupon card from the figure. A shaded card gives a bonus bookmark. What is the probability of a bonus bookmark? Each displayed card or tile is equally likely.	**1/3**
2	A school store tablet randomly shows one equal coupon tile from the figure. A shaded tile gives a free sticker. What is the probability that a tile does not give a sticker? Each displayed card or tile is equally likely.	**7/9**
3	An esports club tested a random loot box 25 times. It gave a rare item 9 times. Use experimental probability to predict the number of rare items in 100 openings.	**36**
4	A music app randomly picks 1 of 5 genres and 1 of 2 moods. Every pair is equally likely. What is the probability it picks hip-hop and calm?	**1/10**

PART 2 · APPLY IT

1. **66 students** The sample shows 11 out of 50 students chose Music Club. Multiply 11/50 by 300 to get 66.
2. **45 wins** The experimental probability is 15/60, or 1/4. One fourth of 180 is 45.

CHALLENGE

Sample space: red-star, red-dot, blue-star, blue-dot. Theoretical probability: 1/4. Prediction: 100 blue dots. The experimental probability is 9/40, which can differ because random trials do not always match the theoretical probability exactly.

Accept equivalent unsimplified fractions where appropriate, including 2/6 for problem 1 and 14/18 for problem 2. For the challenge, accept any complete sample-space list and an explanation that random variation causes experimental results to differ from theoretical probability.