LESSON MAKER PRO

# Chance Check

*Use trial results to predict what may happen next.*

**GRADE 7 · 7.DS.C.5**

**7.DS.C.5** "Understand and apply long-run relative frequency to approximate probabilities and make predictions about chance events. Use data collection or simulation to approximate the probability of a chance event by observing its long-run relative..."

NAME _____ DATE _____

## USE RELATIVE FREQUENCY

To estimate a probability, divide the number of times an event happened by the total number of trials. To predict how often it may happen again, multiply that fraction by the number of new trials.

**WORKED EXAMPLE**

Use the graph to estimate P(blue). Then predict blue results in 50 more trials.

**SPINNER RESULTS**

| | |
|---|---|
| Blue | 18 |
| Red | 12 |

spins

1. Total spins: 18 + 12 = 30.
2. P(blue) ≈ 18/30 = 3/5.
3. Prediction: 50 × 3/5 = 30.

**Answer: P(blue) ≈ 3/5; about 30 blue results.**

## PRACTICE 4 problems

**1** A spinner lands on green 9 times in 36 spins. Estimate P(green).

**ANSWER** _____

**2** An app gives a bonus 14 times in 70 tries. Predict bonuses in 140 tries.

**ANSWER** _____

**3** A simulation shows 16 wins in 64 games. Predict wins in 40 games.

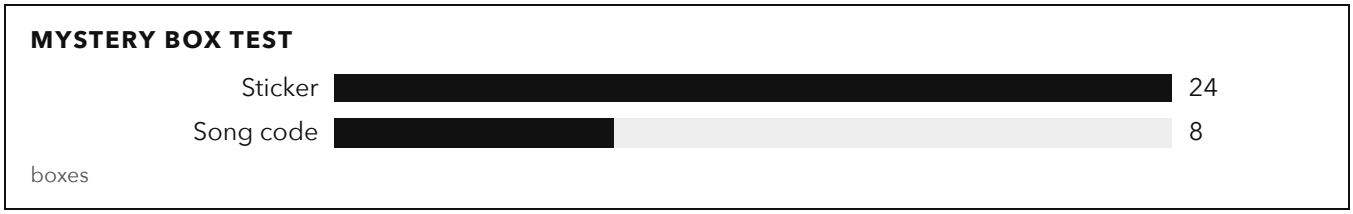
**ANSWER** _____

**4** The estimated chance of a prize is 1/8. Are 6 prizes in 48 tries reasonable? Explain.

**ANSWER** _____

## APPLY IT Show your work

**1** A game app tests mystery boxes. Use the graph to predict song codes in 64 boxes.




**ANSWER** _____

**2** A music app tests its shuffle. Use the graph to estimate P(rock). Are 4 rock songs in 24 more shuffles reasonable? Explain.




**ANSWER** _____

## CHALLENGE One step up

One game test has 7 wins in 28 games. Another has 11 wins in 44 games. Combine both tests to predict wins in 96 games. Show how you used both tests.

WORK SPACE AND ANSWER

**ANSWER KEY**

# Chance Check



## PART 1 · PRACTICE

| # | PROBLEM | ANSWER |
|---|---|---|
| 1 | A spinner lands on green 9 times in 36 spins. Estimate P(green). | **1/4** |
| 2 | An app gives a bonus 14 times in 70 tries. Predict bonuses in 140 tries. | **28 bonuses** |
| 3 | A simulation shows 16 wins in 64 games. Predict wins in 40 games. | **10 wins** |
| 4 | The estimated chance of a prize is 1/8. Are 6 prizes in 48 tries reasonable? Explain. | **Yes. 48 × 1/8 = 6 prizes.** |

## PART 2 · APPLY IT

1. **About 16 song codes.** Song codes appeared in 8/32, or 1/4, of the boxes. Then 64 × 1/4 = 16.
2. **P(rock) ≈ 1/6. Yes, 4 is reasonable because 24 × 1/6 = 4.** Rock appeared in 7 of 42 shuffles, so its estimated probability is 1/6. In 24 shuffles, the prediction is 4 rock songs.

## CHALLENGE

**Together, the tests have 18 wins in 72 games. Since 18/72 = 1/4, predict 96 × 1/4 = 24 wins.**

Accept equivalent fractions. Predictions are estimates, not guarantees.