LESSON MAKER PRO

Chance Check

Compare expected chances with what actually happened.

GRADE 7 · 7A.DSP.C

7A.DSP.C "Investigate probability models."

NAME _____ DATE _____

TWO WAYS TO FIND PROBABILITY

Theoretical probability is favorable outcomes / all equally likely outcomes. Experimental probability is times an event happened / number of trials. Compare the fractions to see whether the results match the model.

WORKED EXAMPLE

A bag has 3 purple tiles and 5 orange tiles. You draw a tile, put it back, and mix the bag each time. In 24 draws, you get purple 9 times. Find both probabilities of purple and compare them.

1. There are 3 + 5 = 8 tiles, so the theoretical probability is 3/8.
2. Purple occurred 9 times in 24 draws, so the experimental probability is 9/24.
3. Simplify 9/24 to 3/8. The two probabilities are equal.

Answer: Theoretical: 3/8. Experimental: 3/8. They are equal.

PRACTICE 6 problems

1 A bag has 2 silver beads and 10 black beads. What is the theoretical probability of drawing a silver bead?

ANSWER _____

2 A coin lands heads 11 times in 22 tosses. What is the experimental probability of heads?

ANSWER _____

3 A spinner has 7 blue sections and 14 yellow sections. All sections are equal in size. What is the theoretical probability of landing on blue?

ANSWER _____

4 Use the table. What is the experimental probability of landing on A?

SPINNER RESULTS

Landing zone	Times landed
A	13
B	17

ANSWER _____

5 A bag has 4 orange tiles and 12 teal tiles. You replace each tile after drawing it. Orange appears 6 times in 32 draws. Find the theoretical and experimental probabilities of orange.

ANSWER _____

6 Use the table. Which shape had the greatest experimental probability, and what was that probability?

SHAPES DRAWN

Shape	Times drawn
Heart	18
Star	10
Moon	2

ANSWER _____

APPLY IT Show your work

1 A trading-card pack has 1 foil card and 19 plain cards. Maya draws a card, puts it back, and mixes the pack before each new draw. She gets a foil card 4 times in 25 draws. Find the theoretical and experimental probabilities of a foil card. Which is greater?

WORK SPACE

ANSWER _____

2 A club playlist has 2 indie songs, 6 pop songs, and 2 jazz songs. Each time a song plays, the player picks at random from the full playlist. Indie plays 14 times in 50 picks. Find both probabilities of indie. Which is greater?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A spinner has 4 equal sections: 2 red, 1 blue, and 1 yellow. Use the results in the table. Which color has the largest difference between its theoretical and experimental probabilities? Show both probabilities and the difference.

SPINNER RESULTS

Color	Times landed
Red	10
Blue	12
Yellow	18

WORK SPACE AND ANSWER

ANSWER KEY

Chance Check

GRADE 7 · 7A.DSP.C

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A bag has 2 silver beads and 10 black beads. What is the theoretical probability of drawing a silver bead?	**1/6**
2	A coin lands heads 11 times in 22 tosses. What is the experimental probability of heads?	**1/2**
3	A spinner has 7 blue sections and 14 yellow sections. All sections are equal in size. What is the theoretical probability of landing on blue?	**1/3**
4	Use the table. What is the experimental probability of landing on A?	**13/30**
5	A bag has 4 orange tiles and 12 teal tiles. You replace each tile after drawing it. Orange appears 6 times in 32 draws. Find the theoretical and experimental probabilities of orange.	**Theoretical: 1/4. Experimental: 3/16.**
6	Use the table. Which shape had the greatest experimental probability, and what was that probability?	**Heart, 3/5**

PART 2 · APPLY IT

1. **Theoretical: 1/20. Experimental: 4/25. The experimental probability is greater.** There is 1 foil card among 20 cards, giving 1/20. Maya's results give 4/25, which is greater than 1/20.
2. **Theoretical: 1/5. Experimental: 7/25. The experimental probability is greater.** The theoretical probability is 2/10 = 1/5. The experimental probability is 14/50 = 7/25, and 7/25 is greater than 1/5.

CHALLENGE

Red. Theoretical: 1/2. Experimental: 10/40 = 1/4. Difference: 1/4.

Accept equivalent fractions. For the challenge, blue has a difference of 1/20 and yellow has a difference of 1/5, so red has the largest difference.