LESSON MAKER PRO

Chance in Action

Count outcomes and test predictions.

GRADE 7 · 7.DSP.C.16

7.DSP.C.16 "Find probabilities of simple and compound events through experimentation or simulation and by analyzing the sample space, representing the probabilities as percents, decimals, or fractions. a..."

NAME _____ DATE _____

THE BIG IDEA

For two fair choices, list every possible pair in an organized table. If all pairs are equally likely, probability is the number of pairs that fit the event divided by the total number of pairs. A simulation gives an experimental probability: the number of times the event happened divided by the number of trials.

WORKED EXAMPLE

Spin a fair spinner labeled 7 and 8, then flip a fair coin. What is the probability of spinning 8 and getting tails?

POSSIBLE OUTCOMES

Spin	Heads	Tails
7	7H	7T
8	8H	8T

1. The table shows 4 equally likely outcomes.
2. Only 8T fits the event, so 1 outcome works.
3. Divide: 1/4.

Answer: 1/4

PRACTICE 4 problems

1 Flip a fair coin twice. List the outcomes, then find the probability of exactly one head.

ANSWER _____

2 Roll a fair six-sided die and flip a fair coin. What is the probability of an even number and heads?

ANSWER _____

3 Spin one fair spinner labeled A, B, C and another labeled red, blue. What is the probability of B and blue?

ANSWER _____

4 Spin a fair spinner labeled 0, 1, 2 and flip a fair coin. What is the probability of a number less than 2 or tails?

ANSWER _____

APPLY IT Show your work

1 A game gives a bonus when two coin flips differ. A simulation of 40 plays gave the results shown. What is the experimental probability of a bonus?

SIMULATED PLAYS

Flips	Count
HH	12
HT	8
TH	11
TT	9

ANSWER _____

2 You design a hoodie by choosing one of 2 colors, black or green, and one of 3 patches, star, moon, or bolt. If each design is equally likely, what is the probability of a green hoodie with a patch other than star?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Roll two fair six-sided dice. What is the probability that the sum is 7 or both dice match? Explain by counting outcomes.

WORK SPACE AND ANSWER

ANSWER KEY

Chance in Action

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Flip a fair coin twice. List the outcomes, then find the probability of exactly one head.	**HH, HT, TH, TT; 2/4 = 1/2**
2	Roll a fair six-sided die and flip a fair coin. What is the probability of an even number and heads?	**3/12 = 1/4**
3	Spin one fair spinner labeled A, B, C and another labeled red, blue. What is the probability of B and blue?	**1/6**
4	Spin a fair spinner labeled 0, 1, 2 and flip a fair coin. What is the probability of a number less than 2 or tails?	**5/6**

PART 2 · APPLY IT

1. **19/40** The flips differed in 8 + 11 = 19 of the 40 simulated plays.
2. **2/6 = 1/3** There are 6 designs. Green with moon or bolt gives 2 favorable designs.

CHALLENGE

1/3. Of 36 outcomes, 6 have a sum of 7 and 6 are matching pairs. None fit both events, so 12/36 = 1/3.

Accept equivalent fractions, decimals, or percents for probabilities. For the first practice problem, accept the four outcomes in any order.