LESSON MAKER PRO

Chance Quest

Find compound probabilities in several ways.

GRADE 7 · 7.SP.C.8

CCSS.Math.Content.7.SP.C.8 "Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation."

NAME _____ DATE _____

COUNT THE COMBINATIONS

For equally likely outcomes, probability = favorable outcomes / total outcomes. Use a list, table, or tree to count combinations. In a simulation, use successful trials / total trials.

WORKED EXAMPLE

A spinner has 7 equal sections labeled P through V. You spin once and toss a coin. What is P(R and tails)?

1. Pair each spinner letter with heads and tails.
2. There are 14 equally likely pairs.
3. Only R, tails is favorable.

Answer: 1/14

PRACTICE 5 problems

1 A fair number cube is rolled and a coin is tossed. What is P(rolling a 5 and tossing heads)?

ANSWER _____

2 A spinner has 8 equal sections numbered 1 to 8. A number cube is rolled. What is P(spinning an even number and rolling a number greater than 4)?

ANSWER _____

3 A bag has 3 black and 5 white tokens. Choose one token, replace it, then roll a fair number cube. What is P(white and an odd roll)?

ANSWER _____

4 In a simulation of 50 turns, 8 turns showed a red space followed by a star. Estimate P(red, then star).

ANSWER _____

5 Roll two fair number cubes. What is P(the sum is 9)?

ANSWER _____

APPLY IT Show your work

1 At an after-school game club, a prize wheel has 9 equal spaces. Two spaces show headphones. A fair coin is tossed after the spin. What is P(headphones and tails)?

WORK SPACE

ANSWER _____

2 A student designs a phone wallpaper by choosing 1 of 5 colors and 1 of 3 icons, each choice equally likely. The colors are blue, green, red, purple, and black. The icons are lightning, star, and soccer ball. What is P(blue or green, and lightning)?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A media club has 4 movie cards, 3 music cards, and 2 game cards. Two cards are drawn without replacement. What is P(drawing one movie card and one game card)? Show both possible orders.

WORK SPACE AND ANSWER

ANSWER KEY

Chance Quest

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A fair number cube is rolled and a coin is tossed. What is P(rolling a 5 and tossing heads)?	**1/12**
2	A spinner has 8 equal sections numbered 1 to 8. A number cube is rolled. What is P(spinning an even number and rolling a number greater than 4)?	**1/6**
3	A bag has 3 black and 5 white tokens. Choose one token, replace it, then roll a fair number cube. What is P(white and an odd roll)?	**5/16**
4	In a simulation of 50 turns, 8 turns showed a red space followed by a star. Estimate P(red, then star).	**4/25**
5	Roll two fair number cubes. What is P(the sum is 9)?	**1/9**

PART 2 · APPLY IT

1. **1/9** There are 2 favorable wheel spaces out of 9 and 1 favorable coin result out of 2. Multiply 2/9 x 1/2 = 1/9.
2. **2/15** There are 15 color-icon pairs. Blue-lightning and green-lightning are the 2 favorable pairs.

CHALLENGE

2/9, because movie then game or game then movie are favorable.

Accept equivalent fractions. For the simulation item, accept 8/50 as well as 4/25; it is an experimental estimate.