LESSON MAKER PRO

Chance in Pairs

Find probabilities when two things happen.

GRADE 7 · 7A.DSP.C.32

7A.DSP.C.32 "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 _____

COUNT THE OUTCOMES

For two choices, make an organized list or table of every possible pair. When the pairs are equally likely, probability is the number that fit the event divided by the total number of pairs.

WORKED EXAMPLE

Spin two fair spinners. Each has sections labeled R, B, and G. What is the probability that both spins show the same letter?

FIRST SPIN AND SECOND SPIN

First / Second	R	B	G
R	RR	RB	RG
B	BR	BB	BG
G	GR	GB	GG

1. Count 9 equally likely pairs.
2. RR, BB, and GG match, so 3 pairs fit.
3. Divide: 3/9 = 1/3.

Answer: 1/3

PRACTICE 4 problems

1 Flip a coin and spin a fair spinner labeled A, B, C, and D. What is P(heads and C)?

ANSWER _____

2 Roll a fair six-sided die and flip a coin. What is P(tails or a 6)?

ANSWER _____

3 Choose a number at random from 1 to 5 and flip a coin. What is P(odd number and heads)?

ANSWER _____

4 Spin a fair spinner labeled 1 to 4 twice. What is P(both numbers are greater than 2)?

ANSWER _____

APPLY IT Show your work

1 A game gives you one hat and one icon at random. Each look in the table is equally likely. What is the probability of getting a beanie or a moon icon?

POSSIBLE LOOKS

Icon	Cap	Beanie
Star	Star-Cap	Star-Beanie
Bolt	Bolt-Cap	Bolt-Beanie
Moon	Moon-Cap	Moon-Beanie

ANSWER _____

2 Players flipped two coins in each of 12 games. Use the recorded pairs to estimate the probability that at least one coin shows heads.

COIN-FLIP PAIRS FROM 12 GAMES

1	2	3	4
HH	HT	TT	TH
HH	TT	HT	HT
TH	TT	HH	HT

ANSWER _____

CHALLENGE One step up

Roll two fair four-sided dice labeled 1 to 4. List the ordered pairs with a sum of at least 6. What is the probability of that event?

WORK SPACE AND ANSWER

ANSWER KEY

Chance in Pairs

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Flip a coin and spin a fair spinner labeled A, B, C, and D. What is P(heads and C)?	**1/8**
2	Roll a fair six-sided die and flip a coin. What is P(tails or a 6)?	**7/12**
3	Choose a number at random from 1 to 5 and flip a coin. What is P(odd number and heads)?	**3/10**
4	Spin a fair spinner labeled 1 to 4 twice. What is P(both numbers are greater than 2)?	**1/4**

PART 2 · APPLY IT

1. **4/6 = 2/3** Four of the six looks have a beanie or a moon icon. Count Moon-Beanie only once.
2. **9/12 = 3/4** Nine of the 12 recorded pairs contain at least one H. Divide 9 by 12.

CHALLENGE

(2, 4), (3, 3), (3, 4), (4, 2), (4, 3), (4, 4); 6/16 = 3/8

Accept equivalent fractions, decimals, or percents for probabilities. In the challenge, the order of the two dice matters when listing pairs.