LESSON MAKER PRO

Chance Changes

Compare events that stay the same with events that change.

GRADE 8 · 8.PS.1.b

8.PS.1.b "Compare and contrast the probability of independent and dependent events."

NAME _____ DATE _____

INDEPENDENT OR DEPENDENT?

Independent events do not change each other, so multiply the original probabilities. Dependent events change the second probability, so use the amount left after the first event.

WORKED EXAMPLE

A spinner has 5 equal sections, and 3 are blue. Then you roll an 8-sided number cube. Find P(blue and rolling a 1).

1. P(blue) = 3/5.
2. P(rolling a 1) = 1/8.
3. The events are independent, so multiply: 3/5 x 1/8 = 3/40.

Answer: 3/40

PRACTICE 5 problems

1 Roll a standard number cube and flip a coin. Find P(even and tails).

ANSWER _____

2 A bag has 7 red tiles and 6 blue tiles. Draw 2 red tiles without replacement. Find the probability.

ANSWER _____

3 A bag has 4 green tiles and 9 yellow tiles. Draw a green tile, replace it, then draw another green tile. Find the probability.

ANSWER _____

4 A card is chosen, replaced, and then another card is chosen. Are the events independent or dependent?

ANSWER _____

5 Two names are selected from a list without putting the first name back. Are the events independent or dependent?

ANSWER _____

APPLY IT Show your work

1 A music app queue has 7 indie songs and 6 rap songs. You play an indie song, remove it from the queue, then play a rap song. What is the probability?

WORK SPACE

ANSWER _____

2 In an online game, a prize wheel has 9 equal spaces, and 2 spaces give a rare avatar. You spin twice. What is P(rare avatar both times)?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A merch table has 7 orange badges and 6 black badges. Find P(orange twice) if you replace the first badge. Then find it if you do not replace it. Explain which probability is greater.

WORK SPACE AND ANSWER

ANSWER KEY

Chance Changes

GRADE 8 · 8.PS.1.b

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Roll a standard number cube and flip a coin. Find P(even and tails).	**Independent; 1/4**
2	A bag has 7 red tiles and 6 blue tiles. Draw 2 red tiles without replacement. Find the probability.	**Dependent; 7/26**
3	A bag has 4 green tiles and 9 yellow tiles. Draw a green tile, replace it, then draw another green tile. Find the probability.	**Independent; 16/169**
4	A card is chosen, replaced, and then another card is chosen. Are the events independent or dependent?	**Independent**
5	Two names are selected from a list without putting the first name back. Are the events independent or dependent?	**Dependent**

PART 2 · APPLY IT

1. **Dependent; 7/26** Multiply 7/13 by 6/12. The first song is removed, so the second probability changes.
2. **Independent; 4/81** Multiply 2/9 by 2/9. One spin does not change the next spin.

CHALLENGE

With replacement: 49/169. Without replacement: 7/26. With replacement is greater because there are still 7 orange badges out of 13 for the second draw.

Accept equivalent fractions. For classification items, accept a correct statement that replacement keeps probabilities the same, while no replacement changes the second probability.