LESSON MAKER PRO

Chance Counts

Build equal-chance models and find simple probabilities.

GRADE 6 · NY-6.SP.8.a

NY-6.SP.8.a "Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of simple events."

NAME _____ DATE _____

EQUAL CHANCES

In a uniform probability model, every outcome has the same chance. Give each outcome a probability of 1 divided by the total number of outcomes. To find an event probability, write favorable outcomes/total outcomes and simplify.

WORKED EXAMPLE

A prize app randomly selects 1 of 13 equal digital tokens. Five tokens show a comet and eight show a moon. What is P(comet)?

1. All 13 tokens are equally likely, so total outcomes = 13.
2. There are 5 favorable outcomes because 5 tokens show a comet.
3. P(comet) = 5/13.

Answer: 5/13

PRACTICE 6 problems

1 1. A digital randomizer chooses 1 of 6 equal labels: A, B, C, D, E, or F. What is P(C)?

ANSWER _____

2 2. A bag has 10 identical slips. Three slips say science and 7 slips say art. One slip is chosen at random. What is P(art)?

ANSWER _____

3 3. A card is chosen at random from 12 equal cards, each labeled with a different month. What is the probability of choosing a month that begins with J?

ANSWER _____

4 4. A box has 16 identical marbles. Four are gold and 12 are silver. One marble is chosen at random. What is P(gold)?

ANSWER _____

5 5. A game gives out 11 equal mystery tokens. Four have a lightning bolt and 7 have a cloud. What is P(cloud)?

ANSWER _____

6 6. A spinner has 18 equal sections. Six sections say WIN, and the remaining sections say LOSE. What is P(LOSE)?

ANSWER _____

APPLY IT Show your work

1 1. The student council app randomly selects 6 of 24 contest entries for early access to a new school game. Each entry is equally likely to be selected. What probability should the model assign to each entry? What is the probability that an entry gets early access?

WORK SPACE

ANSWER _____

2 2. Jordan shuffles a playlist with 21 songs. Seven songs are by Jordan's favorite artist, and the shuffle gives every song an equal chance to play next. What probability should the model assign to each song? What is the probability that the next song is by the favorite artist?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A game avatar is made by randomly choosing 1 of 3 hats and 1 of 4 shirt colors. Every hat-shirt combination is equally likely. One hat has a star, and one shirt color is blue. What is the probability that an avatar has a blue shirt or the star hat? Explain your reasoning.

WORK SPACE AND ANSWER

ANSWER KEY

Chance Counts

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	1. A digital randomizer chooses 1 of 6 equal labels: A, B, C, D, E, or F. What is P(C)?	**1/6**
2	2. A bag has 10 identical slips. Three slips say science and 7 slips say art. One slip is chosen at random. What is P(art)?	**7/10**
3	3. A card is chosen at random from 12 equal cards, each labeled with a different month. What is the probability of choosing a month that begins with J?	**3/12 = 1/4**
4	4. A box has 16 identical marbles. Four are gold and 12 are silver. One marble is chosen at random. What is P(gold)?	**4/16 = 1/4**
5	5. A game gives out 11 equal mystery tokens. Four have a lightning bolt and 7 have a cloud. What is P(cloud)?	**7/11**
6	6. A spinner has 18 equal sections. Six sections say WIN, and the remaining sections say LOSE. What is P(LOSE)?	**12/18 = 2/3**

PART 2 · APPLY IT

1. **Each entry: 1/24. P(early access) = 6/24 = 1/4.** Use 24 as the total number of equally likely entries. Six entries are favorable for early access, so the event probability is 6/24, which simplifies to 1/4.
2. **Each song: 1/21. P(favorite artist) = 7/21 = 1/3.** There are 21 equally likely songs, so each song has probability 1/21. Seven favorable songs out of 21 gives 7/21, or 1/3.

CHALLENGE

1/2. There are 3 x 4 = 12 equally likely hat-shirt combinations. There are 3 blue-shirt combinations and 4 star-hat combinations, but 1 combination has both, so there are 3 + 4 - 1 = 6 favorable combinations. P = 6/12 = 1/2.

Accept equivalent fractions, including unsimplified forms when the favorable and total outcomes are correct. For the challenge, accept 6/12 with reasoning that avoids counting the blue-star combination twice.