

Chance on a Scale

Show probability and describe how likely an event is.

GRADE 7 • 7.PR.6.1

7.PR.6.1 "Represent the probability of a chance event as a number between 0 and 1 that expresses the likelihood of the event occurring. Describe that a probability near 0 indicates an unlikely event..."

NAME _____

DATE _____

PROBABILITY CLUES

Probability = favorable outcomes / total equally likely outcomes. A probability near 0 is unlikely, a probability around $\frac{1}{2}$ is neither unlikely nor likely, and a probability near 1 is likely.

WORKED EXAMPLE

A jar has 3 purple beads and 8 white beads. What is the probability of choosing a purple bead?

1. Favorable outcomes: 3 purple beads.
2. Total outcomes: $3 + 8 = 11$ beads.
3. Probability = $\frac{3}{11}$.

Answer: $\frac{3}{11}$, which is unlikely

PRACTICE 6 problems

- 1** A jar has 4 red beads and 6 yellow beads. Find $P(\text{red})$. Then describe the likelihood.

ANSWER _____

- 2** A prize box has 14 coupons. Thirteen coupons give a free topping, and one coupon does not. Find $P(\text{free topping})$. Then describe the likelihood.

ANSWER _____

- 3** A spinner has 16 equal sections. Four sections have a star. Find $P(\text{star})$. Then describe the likelihood.

ANSWER _____

- 4** An event has a probability of 0.48. Describe the likelihood of the event.

ANSWER _____

- 5** An event has a probability of 0.96. Describe the likelihood of the event.

ANSWER _____

- 6** A spinner has 6 equal sections. Five sections say WIN. Find $P(\text{WIN})$. Then describe the likelihood.

ANSWER _____

APPLY IT Show your work

- 1** The art club receives 20 poster designs for a student vote. Nine designs use digital art. One design is chosen at random for a display. What is the probability that the chosen design uses digital art? Describe the likelihood.

WORK SPACE

ANSWER _____

- 2** A gaming event has 25 reward codes. Twenty-one codes unlock a bonus game item, and the other codes unlock a wallpaper. One code is chosen at random. What is the probability of unlocking a bonus game item? Describe the likelihood.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

At a game tournament, a prize wheel has 20 equal sections. Eighteen sections award coins, and 2 sections award stickers. Sam says that winning coins is 9 times as likely as winning stickers. Is Sam correct? Find both probabilities and explain.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A jar has 4 red beads and 6 yellow beads. Find $P(\text{red})$. Then describe the likelihood.	2/5, neither unlikely nor likely
2	A prize box has 14 coupons. Thirteen coupons give a free topping, and one coupon does not. Find $P(\text{free topping})$. Then describe the likelihood.	13/14, likely
3	A spinner has 16 equal sections. Four sections have a star. Find $P(\text{star})$. Then describe the likelihood.	1/4, unlikely
4	An event has a probability of 0.48. Describe the likelihood of the event.	Neither unlikely nor likely
5	An event has a probability of 0.96. Describe the likelihood of the event.	Likely
6	A spinner has 6 equal sections. Five sections say WIN. Find $P(\text{WIN})$. Then describe the likelihood.	5/6, likely

PART 2 • APPLY IT

- 9/20, neither unlikely nor likely** There are 9 favorable designs out of 20 total designs, so the probability is $9/20$. This is close to $1/2$, so it is neither unlikely nor likely.
- 21/25, likely** There are 21 bonus-item codes out of 25 total codes, so the probability is $21/25$. This value is near 1, so the event is likely.

CHALLENGE

Yes. $P(\text{coins}) = 18/20 = 9/10$, and $P(\text{stickers}) = 2/20 = 1/10$. Since $9/10$ is 9 times $1/10$, winning coins is 9 times as likely. Coins are likely, and stickers are unlikely.

Accept equivalent fractions, such as $4/10$ for $2/5$ and $4/16$ for $1/4$. Accept accurate likelihood language that matches the probability, including “about half” for neither unlikely nor likely.