LESSON MAKER PRO

Which Chance Wins?

Calculate probabilities to make better choices.

HIGH SCHOOL · A1.D.2.4

A1.D.2.4 "Apply probability concepts to real-world situations to make informed decisions."

NAME _____ DATE _____

COMPARE THE CHANCES

When outcomes are equally likely, probability = favorable outcomes / total outcomes. Add the counts to find the total, then simplify. To compare chances, write the fractions with a common denominator.

WORKED EXAMPLE

One ticket is drawn at random. What is P(blue)?

TICKETS IN A BOX

Color	Tickets
Blue	9
Yellow	6

1. Total tickets: 9 + 6 = 15.
2. P(blue) = 9/15 = 3/5.

Answer: 3/5

PRACTICE 4 problems

1 A playlist has 7 pop songs and 11 rock songs. On random shuffle, what is P(pop)?

ANSWER _____

2 A bag has 4 red tokens and 10 black tokens. What is P(not red)?

ANSWER _____

3 A game has 3 winning cards and 17 losing cards. Find P(win). Is it less than 1/4?

ANSWER _____

_____

4 Raffle A has 4 winning tickets out of 25. Raffle B has 7 out of 35. Which has the higher win probability? Show both fractions.

ANSWER _____

_____

APPLY IT Show your work

1 Your concert seat is assigned at random within a section. Which section gives you a better chance of an aisle seat?

CONCERT SEATS

Section	Aisle seats	Total seats
A	5	24
B	7	28

ANSWER _____

2 App A gives a coupon to 3 of every 30 randomly selected orders. App B gives one to 4 of every 32. Which app gives you a better chance?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A bag holds 5 concert passes and 8 stickers. You draw two items without replacement. What is P(both are passes)? Show why.

WORK SPACE AND ANSWER

ANSWER KEY

Which Chance Wins?

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A playlist has 7 pop songs and 11 rock songs. On random shuffle, what is P(pop)?	**7/18**
2	A bag has 4 red tokens and 10 black tokens. What is P(not red)?	**5/7**
3	A game has 3 winning cards and 17 losing cards. Find P(win). Is it less than 1/4?	**P(win) = 3/20; yes, 3/20 < 1/4.**
4	Raffle A has 4 winning tickets out of 25. Raffle B has 7 out of 35. Which has the higher win probability? Show both fractions.	**Raffle B; P(A) = 4/25 and P(B) = 7/35 = 1/5.**

PART 2 · APPLY IT

1. **Section B** Section A has probability 5/24. Section B has probability 7/28 = 1/4 = 6/24, which is greater.
2. **App B** App A's probability is 3/30 = 1/10. App B's probability is 4/32 = 1/8, which is greater.

CHALLENGE

5/39. The first draw has probability 5/13. After a pass is drawn, the next has probability 4/12, so (5/13)(4/12) = 5/39.

Accept equivalent fractions and valid comparisons. For the challenge, the second probability must account for one pass being removed.