LESSON MAKER PRO

Know the Group

Find probabilities when you know one detail.

GRADE 8 · 8A.DSP.H

8A.DSP.H "Conditional probabilities – that is, those probabilities that are "conditioned" by some known information – can be computed from data organized in contingency tables. Conditions or assumptions may affect the computation of a probability."

NAME _____ DATE _____

THE BIG IDEA

A conditional probability uses only the group named after "given." Count the outcomes you want in that group, then divide by the total number in that group.

WORKED EXAMPLE

Given that a student answered on Tuesday, what is the probability the student chose a walk?

AFTER-SCHOOL CHOICES

	Walk	Ride
Monday	6	9
Tuesday	8	7

1. Use only the Tuesday row.
2. Tuesday total: 8 + 7 = 15.
3. Walks on Tuesday: 8.

Answer: 8/15

PRACTICE 4 problems

1 Friday: 5 chose salad, 10 chose pizza. Monday: 12 chose salad, 15 chose pizza. Given Friday, find P(salad).

ANSWER _____

2 Team A: 3 brought water, 11 brought juice. Team B: 4 brought water, 14 brought juice. Given Team B, find P(water).

ANSWER _____

3 Morning: 16 rode a bike, 20 walked. Afternoon: 13 rode a bike, 17 walked. Given morning, find P(walked).

ANSWER _____

4 Group A: 19 picked comedy, 21 picked action. Group B: 23 picked comedy, 25 picked action. Given Group A, find P(comedy).

ANSWER _____

APPLY IT Show your work

1 Students tracked whether they made a video and shared one. Given that a student made a video, what is P(shared)?

VIDEO CHOICES

	Shared	Did not share
Made a video	10	14
Did not make a video	5	11

ANSWER _____

2 Students voted on a game night. Given that a student voted yes, what is P(played the game before)?

GAME NIGHT VOTE

	Voted yes	Voted no
Played before	18	12
Not played before	20	10

ANSWER _____

CHALLENGE One step up

Are P(bus given morning) and P(morning given bus) equal? Find both fractions and explain.

TRAVEL TO PRACTICE

	Bus	Walk
Morning	10	20
Afternoon	15	5

WORK SPACE AND ANSWER

Know the Group

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Friday: 5 chose salad, 10 chose pizza. Monday: 12 chose salad, 15 chose pizza. Given Friday, find P(salad).	**1/3**
2	Team A: 3 brought water, 11 brought juice. Team B: 4 brought water, 14 brought juice. Given Team B, find P(water).	**2/9**
3	Morning: 16 rode a bike, 20 walked. Afternoon: 13 rode a bike, 17 walked. Given morning, find P(walked).	**5/9**
4	Group A: 19 picked comedy, 21 picked action. Group B: 23 picked comedy, 25 picked action. Given Group A, find P(comedy).	**19/40**

PART 2 · APPLY IT

1. **5/12** Among students who made a video, 10 of 24 shared one. Simplify 10/24 to 5/12.
2. **9/19** Of the 38 students who voted yes, 18 had played before. Simplify 18/38 to 9/19.

CHALLENGE

No. P(bus given morning) = 10/30 = 1/3, while P(morning given bus) = 10/25 = 2/5. The conditions give different groups to count.

Accept equivalent fractions. In the challenge, the explanation must show that changing the condition changes the group used as the denominator.