LESSON MAKER PRO

Given That

Find conditional probabilities from two-way tables.

HIGH SCHOOL · A1P.DSP.G.39

A1P.DSP.G.39 "Compute the conditional probability of event A given event B, using two-way tables or tree diagrams."

NAME _____ DATE _____

CHOOSE THE GIVEN GROUP

In P(A | B), the words after the bar tell you which group to use. Count the people who are in both A and B, then divide by the total in group B.

WORKED EXAMPLE

A student is selected from the table. What is P(Bike | Morning)?

HOW STUDENTS TRAVELED

	Bus	Bike
Morning	7	11
Afternoon	13	17

1. Use only the Morning row: 7 + 11 = 18 students.
2. Of those 18 students, 11 traveled by bike.
3. P(Bike | Morning) = 11/18.

Answer: 11/18

PRACTICE 6 problems

1 What is P(Played | Freshman)?

STUDENTS AT A SPORTS EVENT

	Played	Watched
Freshman	8	4
Senior	2	6

ANSWER _____

2 What is P(Freshman | Played)?

STUDENTS AT A SPORTS EVENT

	Played	Watched
Freshman	8	4
Senior	2	6

ANSWER _____

3 What is P(Passed | Did not study)?

QUIZ RESULTS

	Passed	Did not pass
Studied	9	3
Did not study	6	12

ANSWER _____

4 What is P(Studied | Passed)?

QUIZ RESULTS

	Passed	Did not pass
Studied	9	3
Did not study	6	12

ANSWER _____

5 What is P(Podcast | Short)?

MEDIA CHOICES

	Short	Long
Video	6	14
Podcast	10	20

ANSWER _____

6 What is P(Long | Podcast)?

MEDIA CHOICES

	Short	Long
Video	6	14
Podcast	10	20

ANSWER _____

APPLY IT Show your work

1 A club tracks orders for its new shirts. If a delivery order is selected at random, what is the probability that the buyer used a code?

CLUB SHIRT ORDERS

	Pickup	Delivery
Used a code	12	8
No code	16	4

ANSWER _____

2 At a school concert, some ticket buyers also bought a poster. If a poster buyer is selected at random, what is the probability that the person bought a VIP ticket?

CONCERT PURCHASES

	Bought poster	No poster
VIP ticket	15	5
Regular ticket	10	30

ANSWER _____

CHALLENGE One step up

A student claims that P(Joined | Saw post) equals P(Saw post | Joined). Compute both probabilities, then explain in two sentences whether the claim is correct.

CLUB SIGN-UPS

	Joined	Did not join
Saw post	12	8
Did not see post	4	16

WORK SPACE AND ANSWER

Given That

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	What is P(Played | Freshman)?	**2/3**
2	What is P(Freshman | Played)?	**4/5**
3	What is P(Passed | Did not study)?	**1/3**
4	What is P(Studied | Passed)?	**3/5**
5	What is P(Podcast | Short)?	**5/8**
6	What is P(Long | Podcast)?	**2/3**

PART 2 · APPLY IT

1. **2/3** There are 8 + 4 = 12 delivery orders. Of those, 8 used a code, so the probability is 8/12 = 2/3.
2. **3/5** There are 15 + 10 = 25 poster buyers. Of those, 15 bought VIP tickets, so the probability is 15/25 = 3/5.

CHALLENGE

P(Joined | Saw post) = 12/20 = 3/5, while P(Saw post | Joined) = 12/16 = 3/4. The claim is false because the two probabilities use different groups as their denominators.

Accept equivalent fractions or exact decimals for numerical answers. In the challenge, the explanation must distinguish the two given groups.