LESSON MAKER PRO

# Condition Clues

*Find the fraction inside the given group.*

**HIGH SCHOOL · HSS-CP.B.6**

**CCSS.Math.Content.HSS-CP.B.6** "Find the conditional probability of A given B as the fraction of B 's outcomes that also belong to A, and interpret the answer in terms of the model."

NAME _____ DATE _____

## THE BIG IDEA

For P(A | B), count outcomes in both A and B, then divide by the total outcomes in B. Read the result as the part of group B that is also in group A.

## WORKED EXAMPLE

At an art fair, 17 visitors bought prints. Of these visitors, 5 also bought stickers. Find P(bought stickers | bought prints).

1. Both groups: 5 visitors bought prints and stickers.
2. Given group: 17 visitors bought prints.
3. P(stickers | prints) = 5/17.

**Answer: 5/17. Among visitors who bought prints, 5/17 also bought stickers.**

## PRACTICE 5 problems

**1** Of 14 students who ride the bus, 8 bring lunch. Find P(bring lunch | rides the bus).

**ANSWER** _____

**2** A bag has 9 blue chips. Of these, 2 have stars. Find P(star | blue).

**ANSWER** _____

**3** In a survey, 16 gamers own headphones, and 12 of them use a microphone. Find P(uses microphone | owns headphones).

**ANSWER** _____

**4** Of 25 songs on a playlist, 10 are by local artists. Of those, 7 are explicit. Find P(explicit | local artist).

**ANSWER** _____

**5** At a game, 22 fans wear jerseys, and 11 of them also wear hats. Find P(wears a hat | wears a jersey).

**ANSWER** _____

## APPLY IT Show your work

**1** At a school esports event, 40 students watched the finals. Of the 28 club members, 21 watched the finals. Find P(watched finals | club member). Interpret the result.

WORK SPACE

**ANSWER** _____

**2** A music app poll shows that 44 students follow an indie artist. Of those followers, 33 bought tickets to the artist's show. Find P(bought tickets | follows the artist). Interpret the result.

WORK SPACE

**ANSWER** _____

## CHALLENGE One step up

At a cleanup, 16 volunteers brought reusable bottles, and 12 of them biked there. Of 20 volunteers without reusable bottles, 7 biked there. Find P(biked | brought a bottle) and P(brought a bottle | biked). Explain why the probabilities differ.

WORK SPACE AND ANSWER

**ANSWER KEY**

# Condition Clues

**HIGH SCHOOL · HSS-CP.B.6**

## PART 1 · PRACTICE

| # | PROBLEM | ANSWER |
|---|---|---|
| 1 | Of 14 students who ride the bus, 8 bring lunch. Find P(bring lunch \| rides the bus). | **4/7** |
| 2 | A bag has 9 blue chips. Of these, 2 have stars. Find P(star \| blue). | **2/9** |
| 3 | In a survey, 16 gamers own headphones, and 12 of them use a microphone. Find P(uses microphone \| owns headphones). | **3/4** |
| 4 | Of 25 songs on a playlist, 10 are by local artists. Of those, 7 are explicit. Find P(explicit \| local artist). | **7/10** |
| 5 | At a game, 22 fans wear jerseys, and 11 of them also wear hats. Find P(wears a hat \| wears a jersey). | **1/2** |

## PART 2 · APPLY IT

1. **3/4. Among club members, 3/4 watched the finals.** Use club members as the given group: 21/28 = 3/4.
2. **3/4. Among students who follow the artist, 3/4 bought tickets.** Use followers as the given group: 33/44 = 3/4.

## CHALLENGE

**P(biked | brought a bottle) = 3/4. P(brought a bottle | biked) = 12/19. They differ because the first probability uses 16 bottle-bringers as the given group, while the second uses 19 bikers.**

Accept equivalent unsimplified fractions. For interpretation items, accept wording that correctly identifies the given group as the denominator group.