# Whose Total Counts?

Sort each percentage by its denominator.

**MT.CORE.DATA.INT.7.b** "Analyze the relationship between two categorical variables in context. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities by: Interpreting relative frequencies for categorical..."

NAME _____ DATE _____

### ONE GROUP

Use GROUP when the percentage is out of the people in one named group. The denominator is that group's total, not everyone's total.

At a skate rink, 7 of 20 weekend skaters rented helmets. That is 35% of weekend skaters.

### EVERYONE

Use ALL when the percentage is out of everyone counted, even if the statement describes only some of them.

At a pet shelter, 9 of 60 visitors adopted a cat. That is 15% of all visitors.

## 1 SORT

8 items

In a fictional Montana library poll for programs about Montana Indigenous Peoples planned with tribal educators, 30 teens and 50 adults each chose a language talk or a history walk, and 12 teens and 18 adults chose the talk; circle GROUP or ALL for each statement, then pick one item from each category and explain how its denominator helped you decide.

| | | |
|---|---|---|
| **1.** | 40% of teens chose the talk. | GROUP ALL |
| **2.** | 64% of adults chose the walk. | GROUP ALL |
| **3.** | 15% of all respondents were teens who chose the talk. | GROUP ALL |
| **4.** | 60% of teens chose the walk. | GROUP ALL |
| **5.** | 40% of all respondents were adults who chose the walk. | GROUP ALL |
| **6.** | 22.5% of all respondents were adults who chose the talk. | GROUP ALL |
| **7.** | 62.5% of all respondents were adults. | GROUP ALL |
| **8.** | 36% of adults chose the talk. | GROUP ALL |

## 2 PROVE IT

Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

**ITEM #** _____ **HOW I KNEW** _____

**ITEM #** _____ **HOW I KNEW** _____

## 3 MAKE YOUR OWN

One of each

Create a fictional poll with two groups, then write one true GROUP percentage statement and one true ALL percentage statement; include the counts and denominator for each.

**GROUP** _____

**ALL** _____

**CHALLENGE**

In the library poll, compare the percentage of teens who chose the talk with the percentage of adults who chose the talk; name both denominators and find the difference in percentage points.

**ANSWER KEY**

# Whose Total Counts?

**HIGH SCHOOL · MT.CORE.DATA.INT.7.b**

## PART 1 · SORT

| # | ITEM | CATEGORY | WHY |
|---|---|---|---|
| 1 | 40% of teens chose the talk. | **GROUP** | 12 of 30 teens chose the talk, and 12 ÷ 30 = 40%. |
| 2 | 64% of adults chose the walk. | **GROUP** | 32 of 50 adults chose the walk, and 32 ÷ 50 = 64%. |
| 3 | 15% of all respondents were teens who chose the talk. | **ALL** | 12 of all 80 respondents were teens who chose the talk, and 12 ÷ 80 = 15%. |
| 4 | 60% of teens chose the walk. | **GROUP** | 18 of 30 teens chose the walk, and 18 ÷ 30 = 60%. |
| 5 | 40% of all respondents were adults who chose the walk. | **ALL** | 32 of all 80 respondents were adults who chose the walk, and 32 ÷ 80 = 40%. |
| 6 | 22.5% of all respondents were adults who chose the talk. | **ALL** | 18 of all 80 respondents were adults who chose the talk, and 18 ÷ 80 = 22.5%. |
| 7 | 62.5% of all respondents were adults. | **ALL** | 50 of all 80 respondents were adults, and 50 ÷ 80 = 62.5%. |
| 8 | 36% of adults chose the talk. | **GROUP** | 18 of 50 adults chose the talk, and 18 ÷ 50 = 36%. |

## PART 2 · PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

## PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **GROUP**: In a fictional garden poll, 6 of 15 nearby neighbors chose sunflowers, so 40% of nearby neighbors chose sunflowers.
- **ALL**: In that poll, 6 of all 30 neighbors chose sunflowers, so 20% of everyone surveyed chose sunflowers.

**Challenge:** For teens, 12 ÷ 30 = 40%. For adults, 18 ÷ 50 = 36%. The teen percentage was 4 percentage points higher.

The library poll has 80 respondents. For Part 2, look for a denominator of 30 or 50 in the GROUP explanation and 80 in the ALL explanation.