Percent of Whom?

Sort percentages by the group they describe.

A1P.DSP.D.35.b "Interpret relative frequencies in the context of categorical data (including joint, marginal, and conditional relative frequencies)."

NAME _____ DATE _____

JOINT RELATIVE FREQUENCY

A joint percent describes people or things with two traits out of the entire group. Look for both traits and a whole such as "all books."

18% of all library books are poems with green covers.

CONDITIONAL RELATIVE FREQUENCY

A conditional percent starts with a smaller group that already has one trait. It tells what percent of that group has another trait.

60% of books with green covers are poems.

1 SORT

8 items

For Part 1, circle JOINT or GIVEN for each statement; for Part 2, choose two items and explain which group each percent uses as its whole.

1.	25% of all students ride the bus and bring lunch.	JOINT GIVEN
2.	35% of all students walk and buy lunch.	JOINT GIVEN
3.	62.5% of bus riders bring lunch.	JOINT GIVEN
4.	50% of students who bring lunch ride the bus.	JOINT GIVEN
5.	15% of all students ride the bus and buy lunch.	JOINT GIVEN
6.	70% of students who buy lunch walk.	JOINT GIVEN
7.	37.5% of bus riders buy lunch.	JOINT GIVEN
8.	About 58.3% of students who walk buy lunch.	JOINT GIVEN

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

Write one new JOINT statement and one new GIVEN statement about two traits in a group.

JOINT _____

GIVEN _____

CHALLENGE

Write a JOINT statement and a GIVEN statement about the same two traits that could both be true, and give group sizes that prove both percentages.

ANSWER KEY # Percent of Whom?

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	25% of all students ride the bus and bring lunch.	**JOINT**	The whole is all students, and the statement names two traits.
2	35% of all students walk and buy lunch.	**JOINT**	The whole is all students, and the statement names two traits.
3	62.5% of bus riders bring lunch.	**GIVEN**	The whole is the subgroup of bus riders.
4	50% of students who bring lunch ride the bus.	**GIVEN**	The whole is the subgroup that brings lunch.
5	15% of all students ride the bus and buy lunch.	**JOINT**	The whole is all students, and the statement names two traits.
6	70% of students who buy lunch walk.	**GIVEN**	The whole is the subgroup that buys lunch.
7	37.5% of bus riders buy lunch.	**GIVEN**	The whole is the subgroup of bus riders.
8	About 58.3% of students who walk buy lunch.	**GIVEN**	The whole is the subgroup that walks.

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)

- **JOINT**: 20% of all zoo visitors are adults who bought tickets online.
- **GIVEN**: 45% of adult zoo visitors bought tickets online.

Challenge: Of 100 hikers, 40 wear hats, and 20 of those 40 carry water. JOINT: 20% of all hikers wear hats and carry water. GIVEN: 50% of hikers who wear hats carry water.

For Part 2, accept explanations that identify all students or the named subgroup as the whole. The sort statements are consistent with 100 students: 25 ride the bus and bring lunch, 15 ride the bus and buy lunch, 25 walk and bring lunch, and 35 walk and buy lunch.