Whose Number Is It?

Sort numbers that describe whole populations from numbers calculated from samples.

S.Q.2.2 "Recognize a population distribution has fixed values of its parameters and that these parameter values are typically unknown."

NAME _____ DATE _____

POPULATION PARAMETER

A parameter describes a whole population. For a defined population at a given time, it has one fixed value, even if you do not know that value.

The unknown average wingspan of every moth in a forest is a parameter.

SAMPLE STATISTIC

A statistic is calculated from a sample. A different sample could give a different value.

The average wingspan of 12 moths caught in that forest is a statistic.

1 SORT

8 items

For each item, circle PARAMETER or STATISTIC, then choose two items, one from each category, and explain how you knew in Part 2.

1.	The unknown mean quiz score of every junior at Cedar High on Friday.	PARAMETER STATISTIC
2.	The percentage of all 2025 graduates at Harbor High who took physics, not yet counted.	PARAMETER STATISTIC
3.	Of 30 randomly selected lockers at Ridge High, 40% have magnets.	PARAMETER STATISTIC
4.	The median commute time of every worker at Elm Clinic on October 1, not yet measured.	PARAMETER STATISTIC
5.	A survey of 50 Maple Park visitors finds a mean age of 32 years.	PARAMETER STATISTIC
6.	In a sample of 25 Beacon Library books, 8% are overdue.	PARAMETER STATISTIC
7.	The unknown proportion of all cars made at Orion Motors in 2024 that were electric.	PARAMETER STATISTIC
8.	The mean height of every oak tree in Birch Grove on July 1, not yet calculated.	PARAMETER STATISTIC

2 PROVE IT

Explain your thinking

Choose two items, one from each category, and explain how you knew in Part 2.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

Write one new example of a population parameter and one new example of a sample statistic. Make clear which group each describes.

PARAMETER _____

STATISTIC _____

CHALLENGE

A survey of 20 students finds that they read an average of 18 minutes yesterday. Identify the statistic, name the related parameter for all students at the school, and explain whether the parameter must equal 18 minutes.

ANSWER KEY

Whose Number Is It?

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	The unknown mean quiz score of every junior at Cedar High on Friday.	**PARAMETER**	It describes every member of the defined population, so its value is fixed even though it is unknown.
2	The percentage of all 2025 graduates at Harbor High who took physics, not yet counted.	**PARAMETER**	It describes the entire defined group, not a sample.
3	Of 30 randomly selected lockers at Ridge High, 40% have magnets.	**STATISTIC**	The 40% was calculated from the selected lockers.
4	The median commute time of every worker at Elm Clinic on October 1, not yet measured.	**PARAMETER**	It describes all workers in the defined population at that time.
5	A survey of 50 Maple Park visitors finds a mean age of 32 years.	**STATISTIC**	The mean was calculated from the 50 surveyed visitors.
6	In a sample of 25 Beacon Library books, 8% are overdue.	**STATISTIC**	The 8% describes the sampled books.
7	The unknown proportion of all cars made at Orion Motors in 2024 that were electric.	**PARAMETER**	It describes every car in the defined population.
8	The mean height of every oak tree in Birch Grove on July 1, not yet calculated.	**PARAMETER**	It describes all oak trees in the defined population at that time.

PART 2 · PROVE IT

Task: Choose two items, one from each category, and explain how you knew in Part 2.
Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **PARAMETER**: The unknown median number of pages read last week by every student in Room 12.
- **STATISTIC**: The median number of pages read last week by 10 sampled students in Room 12 is 14.

Challenge: The 18-minute sample mean is the statistic. The parameter is the mean reading time yesterday for every student at the school. That fixed population mean does not have to equal 18 minutes.

For Part 2, explanations should identify whether the item describes the entire defined population or a sample. A sample statistic is fixed for the sample used, but it may differ across samples.