Number Detective

Tell whether a number describes a whole group or part of one.

MA.912.DP.5.1 "Distinguish between a population parameter and a sample statistic."

NAME _____ DATE _____

POPULATION PARAMETER

A parameter is a number that describes an entire population, or full group being studied.

A census of every redwood tree in Cedar Grove found an average height of 71 meters.

SAMPLE STATISTIC

A statistic is a number that describes a sample, or part of a larger group.

From 45 randomly chosen library DVDs, 18% were overdue.

1 SORT

8 items

For each statement, circle PARAMETER or STATISTIC, then choose two statements and explain what makes each one fit its category.

1.	The average sleep time for every senior at Eastview High is 7.1 hours.	PARAMETER STATISTIC
2.	Among 90 randomly selected moviegoers, 42% bought popcorn.	PARAMETER STATISTIC
3.	A sample of 35 city buses had a mean delay of 4.6 minutes.	PARAMETER STATISTIC
4.	The proportion of all 2,500 apartments in Lakewood with balconies is 54%.	PARAMETER STATISTIC
5.	Every package filled during the night shift had a mean mass of 498 grams.	PARAMETER STATISTIC
6.	The median quiz score for every ninth grader at Harbor School was 18 points.	PARAMETER STATISTIC
7.	In a random sample of 60 orchard trees, 12 had damaged bark.	PARAMETER STATISTIC
8.	Of 150 surveyed commuters, 64% rode public transit last week.	PARAMETER STATISTIC

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 PARAMETER example and one new STATISTIC example. Make the full group or sample clear in each example.

PARAMETER _____

STATISTIC _____

CHALLENGE

A poll of 200 randomly chosen residents of Brookdale finds that 56% support a new park. Decide whether 56% is a parameter or statistic, then name the population and the sample.

ANSWER KEY

Number Detective

HIGH SCHOOL · MA.912.DP.5.1

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	The average sleep time for every senior at Eastview High is 7.1 hours.	**PARAMETER**	It describes every senior at Eastview High, the full population.
2	Among 90 randomly selected moviegoers, 42% bought popcorn.	**STATISTIC**	It describes 90 selected moviegoers, a sample.
3	A sample of 35 city buses had a mean delay of 4.6 minutes.	**STATISTIC**	It describes a sample of 35 buses, not every city bus.
4	The proportion of all 2,500 apartments in Lakewood with balconies is 54%.	**PARAMETER**	It describes all 2,500 apartments, the full population.
5	Every package filled during the night shift had a mean mass of 498 grams.	**PARAMETER**	It describes every package in the stated group.
6	The median quiz score for every ninth grader at Harbor School was 18 points.	**PARAMETER**	It describes every ninth grader at Harbor School, the population.
7	In a random sample of 60 orchard trees, 12 had damaged bark.	**STATISTIC**	It describes 60 selected orchard trees, a sample.
8	Of 150 surveyed commuters, 64% rode public transit last week.	**STATISTIC**	It describes 150 surveyed commuters, a sample.

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)

- **PARAMETER**: The percent of all instruments in the band room needing repair is 9%.
- **STATISTIC**: In a random sample of 40 restaurant receipts, the mean tip was $6.20.

Challenge: The 56% is a statistic because it describes the 200 randomly chosen residents. The population is all residents of Brookdale, and the sample is the 200 residents in the poll.

Accept any explanation that names the deciding feature from the rule box for the chosen item. For the two explanations, students should point to whether the statement describes a full population or only a sample. Accept equivalent language such as whole group, everyone, selected group, or part of the group.