Sample or Whole?

Sort numbers by the group they describe.

S.Q.2.1 "Distinguish between sample statistics and population parameters."

NAME _____ DATE _____

SAMPLE STATISTIC

A sample statistic is a number calculated from part of a group. The people or things measured are a sample of the whole group.

Of 20 orchids chosen from a greenhouse, 35% bloom in May.

POPULATION PARAMETER

A population parameter is a number calculated from every member of a group. The group must be clearly named.

Of every orchid in a greenhouse, 42% bloom in May.

1 SORT

8 items

Circle STATISTIC or PARAMETER for each item; in Part 2, choose two numbered items and explain how you knew where each belongs.

1.	In a random sample of 80 city renters, 56% own a pet.	STATISTIC PARAMETER
2.	The mean age of every teacher at North High is 39 years.	STATISTIC PARAMETER
3.	Among all 640 tickets sold for a play, 28% were student tickets.	STATISTIC PARAMETER
4.	Of 25 randomly chosen neighborhood houses, 8 have solar panels.	STATISTIC PARAMETER
5.	In a sample of 50 warehouse shipments, the median delivery time was 3 days.	STATISTIC PARAMETER
6.	Across every tree in Pine Park, the average height is 7 meters.	STATISTIC PARAMETER
7.	Of 30 randomly selected phone batteries made by a factory this week, 4 failed a test.	STATISTIC PARAMETER
8.	Of 120 randomly chosen students at West High, 65% favor a later start time.	STATISTIC PARAMETER

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 numerical example of a sample statistic and one of a population parameter; name the whole group and make clear whether the number uses a sample or everyone.

STATISTIC _____

PARAMETER _____

CHALLENGE

Write a population parameter and a sample statistic about the same group, using different numerical results; explain in one sentence why the results can differ.

ANSWER KEY

Sample or Whole?

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	In a random sample of 80 city renters, 56% own a pet.	**STATISTIC**	The percentage comes from a sample of city renters.
2	The mean age of every teacher at North High is 39 years.	**PARAMETER**	The mean uses every teacher at North High.
3	Among all 640 tickets sold for a play, 28% were student tickets.	**PARAMETER**	The percentage uses all tickets sold for the play.
4	Of 25 randomly chosen neighborhood houses, 8 have solar panels.	**STATISTIC**	The count comes from a sample of neighborhood houses.
5	In a sample of 50 warehouse shipments, the median delivery time was 3 days.	**STATISTIC**	The median comes from a sample of shipments.
6	Across every tree in Pine Park, the average height is 7 meters.	**PARAMETER**	The average uses every tree in Pine Park.
7	Of 30 randomly selected phone batteries made by a factory this week, 4 failed a test.	**STATISTIC**	The count comes from a sample of the batteries made that week.
8	Of 120 randomly chosen students at West High, 65% favor a later start time.	**STATISTIC**	The percentage comes from a sample of West High students.

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)

- **STATISTIC**: Of 40 randomly selected apples in an orchard, 30% have spots.
- **PARAMETER**: Of every seat in a theater, 25% are in the balcony.

Challenge: Of all 200 museum guides, 30% speak French (population parameter). Of 20 selected museum guides, 25% speak French (sample statistic). The results can differ because a sample may not have the same proportion as the whole group.

For Part 2, accept explanations that identify whether the number uses a sample or every member of the named group. For Part 3, check that each example gives a numerical result and makes the group measured clear.