Whose Number Is It?

Look at the group behind each number.

MT.PLUS.DATA.INF.1 "Distinguish between a statistic and a parameter and use statistical processes to make inferences about population parameters based on statistics from random samples from that population."

NAME _____ DATE _____

STATISTIC	PARAMETER
A statistic describes a sample, which is part of a larger group. A statistic from a random sample can help you estimate a value for the whole group. Among 30 randomly selected coral colonies on a reef, 12 showed bleaching.	A parameter describes the entire population, which is the whole group being studied. Of all 240 trees in an orchard, 90 are apple trees.

1 SORT

8 items

Part 1 SORT: Circle SAMPLE or POPULATION for each item; for Part 2 PROVE IT, choose two items, one from each category, and explain how you knew.

1.	1. Among 80 randomly selected city buses, 12 arrived late.	SAMPLE POPULATION
2.	2. Of all 520 seniors at North High, 390 plan to attend prom.	SAMPLE POPULATION
3.	3. The mean height of every player on the varsity soccer roster is 171 cm.	SAMPLE POPULATION
4.	4. Of 50 randomly selected households in Pine County, 18 use solar panels.	SAMPLE POPULATION
5.	5. In a random sample of 120 registered voters in Ward 3, 54 favor the proposal.	SAMPLE POPULATION
6.	6. Of every public playground in Elm City, 9 have a splash pad.	SAMPLE POPULATION
7.	7. Among 25 randomly selected laptops made at a factory this week, 3 failed inspection.	SAMPLE POPULATION
8.	8. The median delivery time for 35 randomly selected store orders last month was 2 days.	SAMPLE POPULATION

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

Part 3 MAKE YOUR OWN: Write one new example of a statistic and one new example of a parameter.

SAMPLE _____

POPULATION _____

CHALLENGE

CHALLENGE: A random sample of 100 students from a school of 800 finds that 65 ride the bus. State the sample statistic, estimate the percentage of all 800 students who ride the bus, and explain why your estimate might differ from the true percentage.

ANSWER KEY

Whose Number Is It?

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	1. Among 80 randomly selected city buses, 12 arrived late.	**SAMPLE**	The count describes only the 80 selected buses.
2	2. Of all 520 seniors at North High, 390 plan to attend prom.	**POPULATION**	The count describes all seniors at North High.
3	3. The mean height of every player on the varsity soccer roster is 171 cm.	**POPULATION**	The mean includes every player on the roster.
4	4. Of 50 randomly selected households in Pine County, 18 use solar panels.	**SAMPLE**	The count describes only the selected households.
5	5. In a random sample of 120 registered voters in Ward 3, 54 favor the proposal.	**SAMPLE**	The count describes a sample of Ward 3 voters.
6	6. Of every public playground in Elm City, 9 have a splash pad.	**POPULATION**	The count covers every public playground in Elm City.
7	7. Among 25 randomly selected laptops made at a factory this week, 3 failed inspection.	**SAMPLE**	The count describes only the selected laptops.
8	8. The median delivery time for 35 randomly selected store orders last month was 2 days.	**SAMPLE**	The median comes from selected orders, not all orders.

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)

- **SAMPLE**: Of 40 randomly selected museum visitors, 28 bought tickets online.
- **POPULATION**: Of all 300 paintings in a museum, 45 are portraits.

Challenge: The sample statistic is 65%, since 65 of the 100 sampled students ride the bus. I estimate that 65% of all students ride the bus. The true percentage might differ because random samples vary.

Accept Part 2 explanations that identify whether the number describes a selected part of a group or the entire group. In the challenge, 520 students is also a valid estimate if the student uses 65% of 800.