

Accelerated 6 • Unit 8 Worksheet

Data Sets, Distributions, and Sampling

Name: _____

Date: _____

Part A • Quick Stats

For the data set: 4, 7, 7, 8, 10, 12, 14.

Mean = ? _____	Median = ? _____	Mode = ? _____	Range = ? _____
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Part B • Reading and Interpreting Distributions

1. Here is a small data set: 2, 4, 4, 5, 6, 7, 8, 8, 9, 12.

- a. Mean: _____
- b. Median: _____
- c. Mode: _____
- d. Range: _____
- e. Is the distribution SYMMETRIC or SKEWED? If skewed, in which direction?

2. A dot plot shows a class's quiz scores: 50, 60, 60, 65, 70, 70, 70, 75, 75, 80, 80, 85, 90, 95, 100.

- a. Mean: _____ Median: _____ Mode: _____
- b. Which measure (mean or median) best represents 'typical'? Why?

c. If a student who scored 30 is added, which measure changes MORE?

Part C • Measures of Variability

3. Two basketball players' last 5 games' points:

a. Mean for Alex: _____ Mean for Sam: _____

b. Who is more consistent? Why?

c. If you had to bet on a player scoring 13 points in their next game, who would you pick? Why?

	Game 1	Game 2	Game 3	Game 4	Game 5
Alex	12	14	13	12	14
Sam	5	25	8	22	5

4. Find the IQR (interquartile range) for: 3, 5, 7, 8, 10, 12, 15, 18, 20.

Median: _____

Q1 (lower quartile): _____ Q3 (upper quartile): _____

IQR = $Q3 - Q1$ = _____

Part D • Sampling and Inference

5. A school has 600 students. To estimate the average daily screen time, two students designed surveys.

a. Mai asks her 30 closest friends. ☐ Random sample ☐ Biased Why?

b. Han randomly picks 30 names from the school directory. ☐ Random sample ☐ Biased Why?

c. Whose results would better predict the WHOLE school's screen time? Why does this matter?

6. A sample of 50 people: 30 prefer apple juice, 20 prefer orange juice. The population is 4000 people.

Estimate how many people in the population prefer apple: _____

What assumption did you make?

If a SECOND random sample of 50 gave 26 apple, 24 orange, would the estimate change? By how much?

Part E • Probability

7. A bag contains 4 red, 3 blue, and 5 green marbles. One marble is drawn at random.

a. $P(\text{red}) =$ _____

b. $P(\text{NOT blue}) =$ _____

c. $P(\text{red OR green}) =$ _____

d. If you draw 120 times (with replacement), about how many reds? _____

Part F • Thinking Deeply

8. Sara's data set: 5, 7, 8, 8, 9, 12. The mean and the median are both 8.

Diego adds ONE more value. The mean is now 10, but the median is still 8. What value did he add?

Is there more than one possibility? Explain.

9. A factory's quality team checks 200 randomly selected products from a day's run of 50,000. They find 3 defective.

Estimate how many defective products are in the whole day's run: _____

Now suppose they check ANOTHER 200 and find 8 defective. Update your estimate.

Why might TWO random samples give such different defect rates?

10. A class average on a test is 78. If 10 students took it, and 9 of them scored exactly 80, what was the 10th student's score?

Show your work:

10th student's score: _____

Why does the average DROP from 80 even though only ONE student is below it?
