

SPARK Hybrid Education Center

Mathematics Unit Test | February - Data & Statistics | Lower Level

Name: _____ Date: _____ Score: _____ / 100

SECTION 1: Multiple Choice (1 point each = 10 points)

1. The **MEAN** of 4, 8, 6, 10, 2 is:

- A) 4
- B) 5
- C) 6
- D) 8

2. The **MEDIAN** of 3, 7, 2, 9, 5 (sorted: 2,3,5,7,9) is:

- A) 2
- B) 3
- C) 5
- D) 7

3. The **MODE** of 4, 5, 4, 7, 4, 9 is:

- A) 4
- B) 5
- C) 7
- D) 9

4. The **RANGE** of 12, 5, 20, 8, 3 is:

- A) 8
- B) 12
- C) 17
- D) 20

5. Which graph type is **BEST** for showing change over time?

- A) bar graph
- B) pie chart
- C) line graph
- D) pictograph

6. As outside temperature increases, winter coat sales decrease. This is ____ correlation.

- A) positive
- B) negative
- C) no correlation
- D) perfect

7. **P(rolling a 3 on a fair die) =**

- A) $\frac{1}{3}$
- B) $\frac{1}{4}$
- C) $\frac{1}{6}$
- D) $\frac{3}{6}$

8. A bag has 5 red and 3 blue marbles. $P(\text{blue}) =$

- A) $\frac{3}{5}$
- B) $\frac{5}{8}$
- C) $\frac{3}{8}$
- D) $\frac{1}{3}$

9. A data set has one extremely high value (outlier). Which average is MOST affected?

- A) median
- B) mode
- C) range
- D) mean

10. True or False: A line of best fit must pass through every data point.

- A) True
- B) False
- C) Only sometimes
- D) Only for positive correlation

SECTION 2: Matching (2 points each = 10 points)

COLUMN A (Terms)

1. ____ Mean
2. ____ Positive correlation
3. ____ Mode
4. ____ Histogram
5. ____ Line of best fit

COLUMN B (Definitions)

- a. Sum of values divided by the count
- b. As x increases, y also increases
- c. The value that appears most often
- d. A bar graph showing frequency in intervals
- e. A line drawn through a scatter plot to show the trend

SECTION 3: Show Your Work (4 points each = 20 points)

1. Find the mean, median, mode, and range of: 8, 3, 7, 3, 12, 9, 3. **SHOW YOUR WORK:**

2. A bag has 4 red, 6 blue, 2 green marbles. Find $P(\text{red})$, $P(\text{blue})$, and $P(\text{NOT green})$. **SHOW YOUR WORK:**

3. You flip a coin 50 times and get 28 heads. (a) What is the experimental $P(\text{heads})$? (b) How does it compare to the theoretical probability? **SHOW YOUR WORK:**

4. A student's quiz scores are: 72, 85, 90, 68, 91, 85. Find the mean and median. Which would you report to show the student is doing well? Explain. **SHOW YOUR WORK:**

5. A scatter plot shows hours studied vs. test score. Describe what type of correlation you would expect and why. **SHOW YOUR WORK:**

SECTION 4: Word Problems (20 points each = 60 points)

Problem 1. (20 pts)

A class of 5 students earned these scores on a test: 70, 85, 90, 90, 65. (a) Find the mean. (b) Find the median. (c) Find the mode. (d) The teacher wants to report the score that best represents the class. Which measure would you choose and why?

Problem 2. (20 pts)

You are studying weather patterns. You notice that as the number of sunny days increases, the number of indoor recess days decreases. (a) What type of correlation is this? (b) Draw a rough sketch of what this scatter plot might look like. (c) Would you draw a line of best fit with positive or negative slope?

Problem 3. (20 pts)

A spinner has 8 equal sections: 3 red, 2 blue, 2 green, 1 yellow. (a) Find $P(\text{red})$. (b) Find $P(\text{NOT red})$. (c) Find $P(\text{blue or green})$. (d) If you spin the spinner 80 times, how many times would you expect to land on yellow?

Section 1: Multiple Choice

1. A

0000

Section 2: Matching

1. Mean = a

2. Positive correlation = b

3. Mode = c

4. Histogram = d

5. Line of best fit = e

Sections 3 & 4: Use professional judgment to award partial credit.

Award full points for correct final answer with clear work shown. Award half credit for correct process with a computation error. Deduct points for missing steps even when the answer is correct. Word problems: 20 pts = 8 setup + 8 work + 4 answer/label.