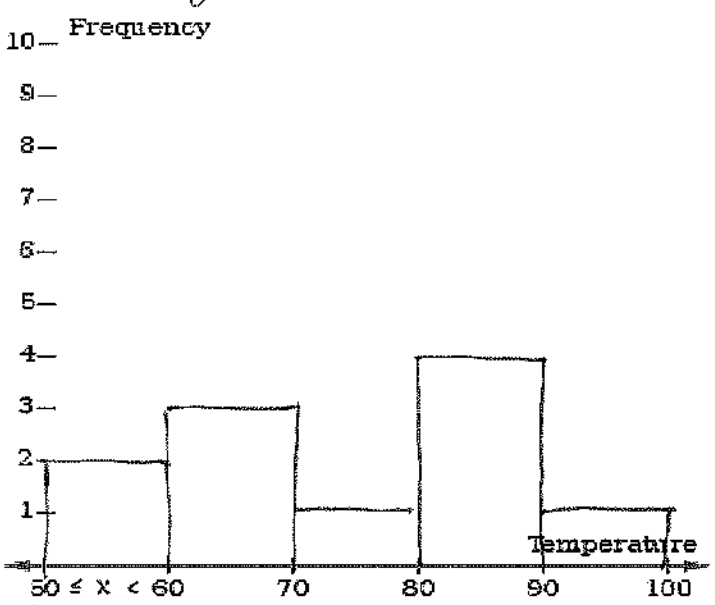
Geo U4 SBAC Practice Name Key Date _____ Period ___

Part A: Statistics

1. Use the provided axes to **construct** a histogram of the data set.

56, 58, 60, 61, 67, 72, 80, 85, 85, 89, 99

x	frequency
$50 \leq x < 60$	2
$60 \leq x < 70$	3
$70 \leq x < 80$	1
$80 \leq x < 90$	4
$90 \leq x < 100$	1



common misconception: students often forget which bin to assign a value to if it lands on the boundary.

" between 50 and 60, inclusive of 50."

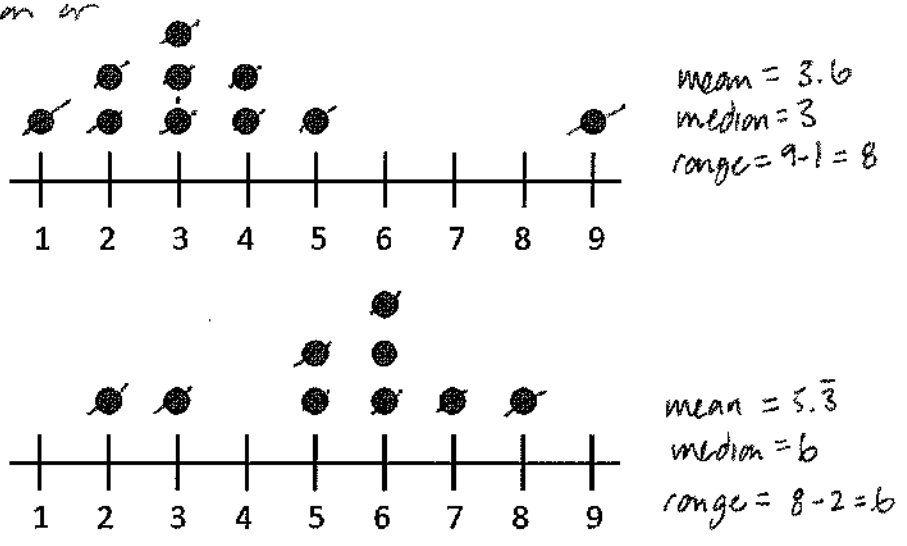
2. **Select** whether the statistic is greater for class A, class B, or impossible to determine.

common misconceptions: students often don't see the data as individuals and will calculate the mean or median using values once when they are represented 2+ times

EX: calculating the mean of set A by:

$\frac{1+2+3+4+5+9}{6}$

students also might know the median is resistant and mistakenly select "impossible to determine."



	Greater for Class A	Greater for Class B	Impossible to Determine
Mean dinners sold	☐	☒	☐
Median dinners sold	☐	☒	☐
Range of dinner sold	☒	☐	☐

Part B: Outcomes, Events, and Sample Spaces [S-CP.1]

3. A high school Biology class has 32 students. Of these, 18 are in Algebra 1, 7 are in Geometry, 5 are in Algebra 2, and the remainder have no math class. Suppose that a person is selected at random from the class.

Select True or False for each statement.

	True	False
The probability that the student is in Algebra is less than $\frac{1}{2}$. $\frac{18}{32}$	☐	☒
The probability that the student is in Geometry or Algebra 2 is $\frac{12}{32}$. $\frac{7+5}{32}$	☒	☐
$\frac{32-18-7-5}{32} = \frac{2}{32}$ The probability that the student doesn't have a math class is $\frac{1}{16}$. ✓	☒	☐

Part C: Conditional Probabilities & Independence [S-CP.2, S-CP.3, S-CP.4]

4. A bag contains 6 green balls, 7 orange balls, and 2 red balls. **Determine** which is more likely to occur, **justifying** your reasoning.

Scenario A: Randomly select a green ball from the bag, then selecting a second ball from the bag randomly and having it be red (without replacement).

Scenario B: Randomly select an orange ball from the bag three times in a row, returning the ball to the bag after each attempt (with replacement).

Scenario A:

green 6/18 < red 2/17 = $\frac{12}{306} = \frac{2}{51} = 3.9\%$

Scenario B:

$\left(\frac{7}{18}\right)\left(\frac{7}{18}\right)\left(\frac{7}{18}\right) = \frac{343}{5832}$

5.9%

Scenario B is more likely

5. A car rental company purchases 65% Toyotas and 35% Hondas. It is known that 4% of Toyotas have a production defect while 6% of Hondas have a production defect.

Suppose one of the rental company's new vehicles is found to have a production defect. **Determine** the probability that it is a Honda. **Show** your work.

Purchased:	Defective:	
Toyotas .65	.96 not defective	.624
	.04 defective	.026
Hondas .35	.94 not defective	.329
	.06 defective	.021

$\frac{P(\text{Defective} \cap \text{Honda})}{P(\text{Defective})} = \frac{.021}{.021+.026} =$

44.9%