Alg 1 U4 SBAC Practice Name Key Date _____ Period ___

Part A: Categorical Data [S-ID.5]

1. Krista conducted a survey on breakfast preference and gender.

	Cereal	Other	
Female	22	36	58
Male	13	24	37
	35	60	95

A) **Determine** the percent of surveyed students that are female.

$P(\text{Female}) = \frac{58}{95} = .611$ 61.1%

B) Given a student is female, **determine** the probability they prefer cereal. $\frac{P(\text{Female} \cap \text{cereal})}{P(\text{Female})} = \frac{22}{58} = .379$ 37.9%

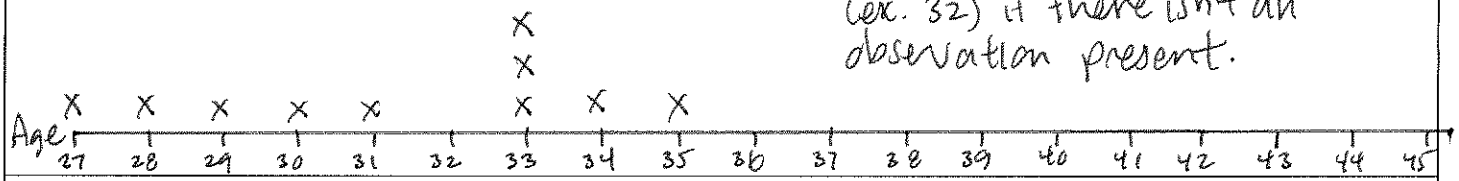
C) **Determine** if there is an association between gender and cereal. **Justify** your response.

There doesn't appear to be an association between gender and breakfast preference. About 38% of females prefered cereal while 35% of males prefered cereal which is pretty close.

Part B: Data Distributions [S-ID.2]

2. **Sketch** a line plot to represent the following set of data:
Age of Candidates: 27, 28, 29, 30, 31, 33, 33, 33, 34, 35

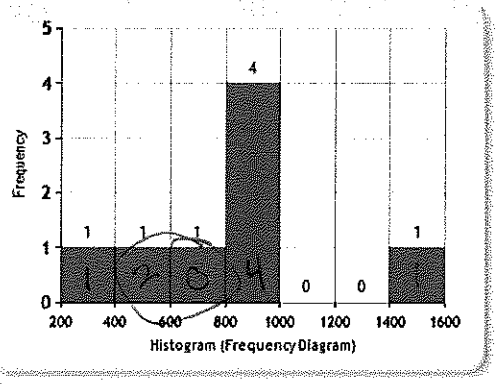
common misconception
Students often skip values (ex. 32) if there isn't an observation present.



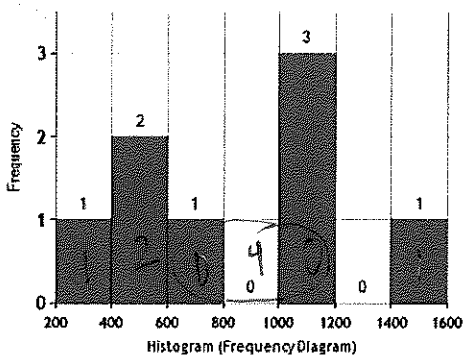
3. **Select** all the histogram that represents the following set of data:
550° F ✓ 802° F ✓ 904° F ✓ 965° F ✓ 950° F ✓ 1420° F ✓ 210° F ✓ 520° F ✓

210°, 520°, 550°, 802°, 904°, 950°, 965°, 1420°

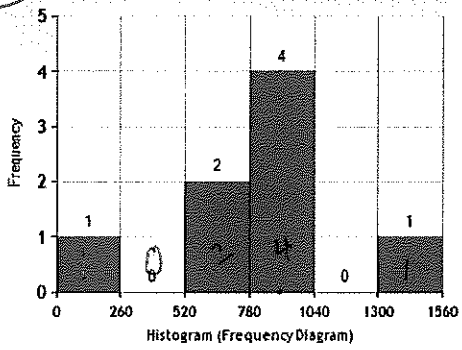
A)



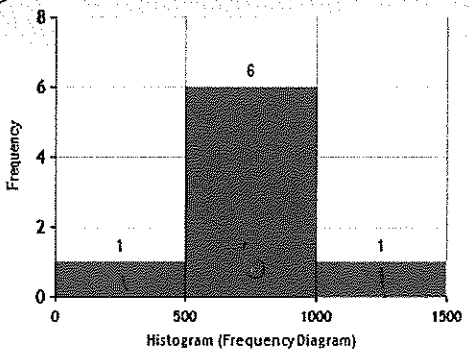
B)



C)



D)



much higher

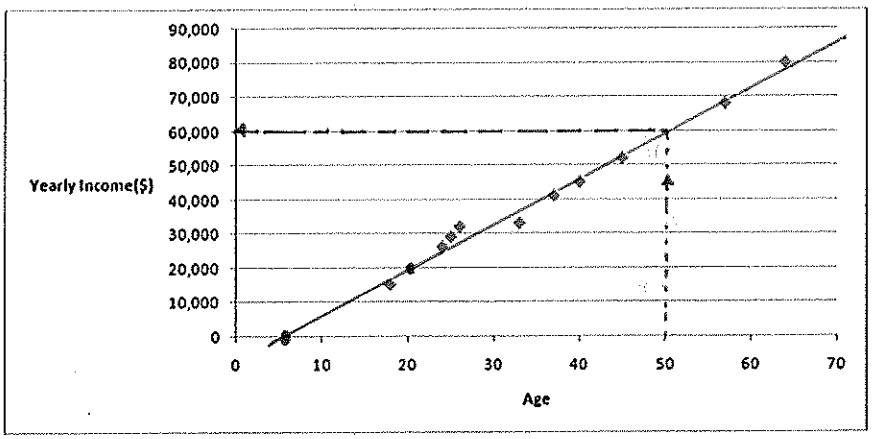
4. An arcade has prizes that range in cost from 1 ticket to 100 ticket. A new prize is added that costs 150 tickets. **Select** whether the value of each statistic for the cost of prizes increases, decreases, or cannot be determined.

common misconception: without knowing the data, we don't know the middle values.

A) Mean	Increases	Decreases	Cannot be Determined
B) Median	Increases	Decreases	Cannot be Determined
C) Standard Deviation	Increases	Decreases	Cannot be Determined

Part C: Scatter Plots [S-ID.6]

5. As part of a study for his Economics course, Michael surveyed ten random adults and plotted their age versus income in Excel.



Common misconceptions
the line of best fit doesn't need to contain the origin, lowest, heighest, or really any of the points.

A) **Approximate** the line of best fit on the graph and with a function.

using the points:
(5, 0)
(20, 20,000)

approximately $y = 1333x - 6666$

$m = \frac{20,000 - 0}{20 - 5} = \frac{20000}{15} = 1333$ $/yr.

$y - 20000 = 1333(x - 20)$
$y - 20000 = 1333x - 26,666$
$+20000 \quad +20000$
$y = 1333x - 6666$

B) **Describe** the distribution of the data.

The data is strongly correlated in a positive direction. The trend appears to be linear.

C) **Predict**, using the line of best fit, the yearly income of an individual with age 50.

$y = 1333(50) - 6666$
$y = 59984$ about $60,000/yr

6. The data below show the height, in inches, and the weight, in pounds, of ten male students in Mr. Alexander's PE class.

Height (inches)	50	54	56	57	59	60	61	61	62	64
Weight (pounds)	135	152	147	148	165	175	172	189	187	192

According to the linear model that best fits the data, **determine** the predicted weight of a person with a height of 62 inches.

using graphing calculator or desmos, $y \sim -93.06 + 4.439x$

$y \sim -93.06 + 4.439(62)$
$y \sim 182.178$ pounds