

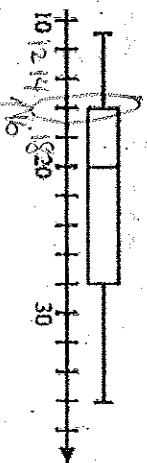
Test #1

Part 1: Answer all questions in this part. Each correct answer will receive 4 credits. No partial credit will be allowed. For each question, bubble the answer on the scantron, the numeral preceding the word or expression that best completes the statement or answers the question.

1. Which statement is true about the data set 3, 4, 5, 6, 7, 7, 10?

- (1) mean = mode $\rightarrow \text{mean} = \frac{47}{7} = 6$
 (2) mean = median $\text{median} = 6$
 (3) mean > mode $\text{mode} = 7$
 (4) mean < median

3. According to the following box-and-whiskers diagram, which of the following values represents the lower quartile of this data set?



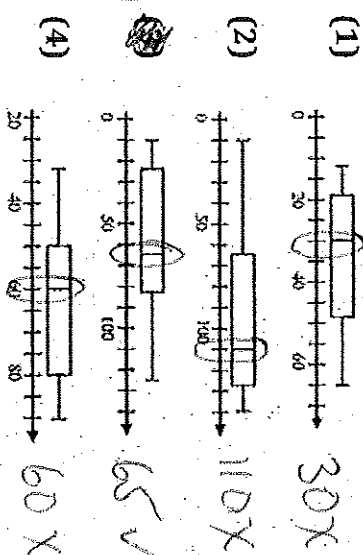
- (1) 20
 (2) 28
 (3) 13
 (4) 16

Q_1 (lower quartile)

2. Which of the following datasets has the greatest range?

- (1) {3, 4, 7, 10, 18} $18 - 3 = 15$
 (2) {65, 66, 70, 72} $72 - 65 = 7$
 (3) {-2, 5, 8, 11, 26} $26 - (-2) = 28$
 (4) {-5, -2, 4, 7, 10} $10 - (-5) = 15$

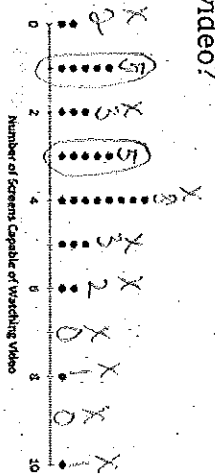
4. Which of the following box-and-whiskers diagram represents a data set whose median value is equal to 65?



5. Which set of data has more than 2 modes?

- (1) {12, 12, 15, 16, 18, 20} 1 mode
 (2) {1, 1, 1, 2, 2, 2, 3} 2 modes
 (3) {0, 5, 6, 7} 0 modes
 (4) {2, 2, 3, 3, 4, 4, 8, 9} 3 modes

7. Based on the dot plot, how many households have 5 devices capable of showing video?



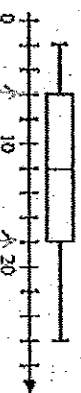
- (1) 0
 (2) 1
 (3) 3
 (4) 5

9. Which of the following best measures the average distance that a data value lies away from the mean?

- (1) mean
 (2) median
 (3) standard deviation
 (4) range

Definition

11. What is the interquartile range of the data set represented in the box plot shown below?



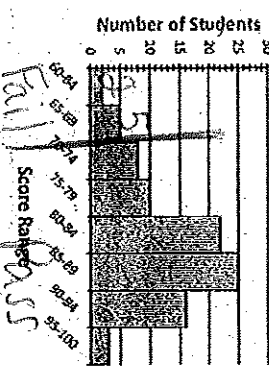
- (1) 24
 (2) 14
 (3) 8
 (4) 12

$Q_3 - Q_1$
 $18 - 10 = 8$

10. Which of the following data sets would have the largest standard deviation?

- (1) {3, 3, 4, 5, 5} \rightarrow most
 (2) {2, 8, 18, 26, 35} \rightarrow spread
 (3) {72, 73, 74, 75, 76}
 (4) {8, 10, 12, 14, 16}

8. Students do not pass the quiz if they receive lower than a 70. How many students did not pass?



- (1) 8
 (2) 5
 (3) 7
 (4) 13

$2 + 5 = 7$

12. A survey is being conducted to determine if a cable company should add another sports channel to their schedule. Which random survey would be the least biased?

- (1) surveying 30 men at a gym \rightarrow most
 (2) surveying 45 people at a mall \rightarrow fair
 (3) surveying 50 fans at a football game \rightarrow most
 (4) surveying 20 members of a high school soccer team \rightarrow random

Part 2: Answer all questions in this part. Each correct answer will receive 6 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Complete all questions in this part; a correct numerical answer with no work shown will receive only 1 credit.

13. Based on the TI-84 output screen, identify:

1-Var Stats
 $\bar{x} = 63.85556971$
 $s_x = 6.3665$
 $\bar{y} = 15.4302725$
 $s_y = 15.4353244$
 $r = 15.42758961$
 $n = 997$

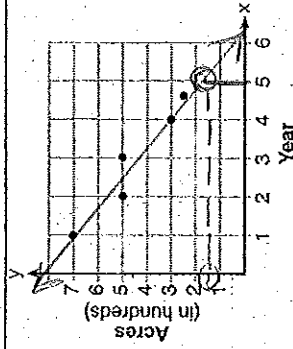
- Mean: 63.86
- Number of data values: 997
- Sample standard deviation: 15.44

14. Determine whether the data described is

~~quantitative~~ or categorical:

- hair color of students: *categorical*
- ages of students in a biology class: *quantitative*
- the phone numbers in a telephone book: *categorical*

15. The graph on the right illustrates the number of acres used for farming in Smalltown, New York, over several years.



Using a line of best fit, approximately how many acres will be used for farming in the 5th year?

150 or 200

17. Base your answers below on the given two-way table:

	Math	English	Social Studies	Science	Total
Female	8	6	11	5	30
Male	10	4	8	4	26
Total	18	10	19	9	56

• How many female students like social studies?

11

• How many total students were surveyed?

56

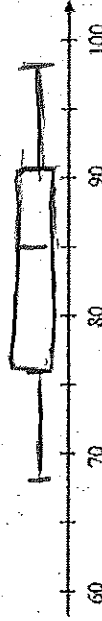
• What is the marginal relative frequency of liking math? $18/56 = 32\%$

Part 3: Answer all questions in this part. Each correct answer will receive 8 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit.

19. Create a box plot based on the 17 scores below from a math test.

67, 72, 74, 74, 78, 80, 80, 82, 85, 85, 86, 87, 90, 92, 92, 95, 98

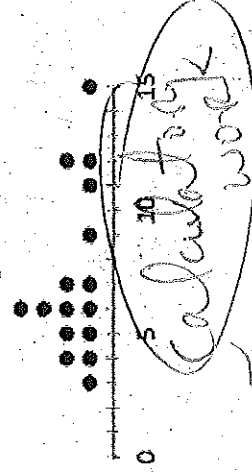
5 # Summary
 min: 67
 Q1: 76
 med: 85
 Q3: 91
 max: 98



75% of students scored lower than a 91.

→ Q3

16. Determine the mean and population standard deviation for the dot plot below:



Mean: 7.375

ox: 3.33

18. Below is a frequency table summarizing a classes quiz grades:

Mark	Tally	Frequency
4		2
5		2
6		4
7		5
8		4
9		2
10		1

• Determine the mean score:

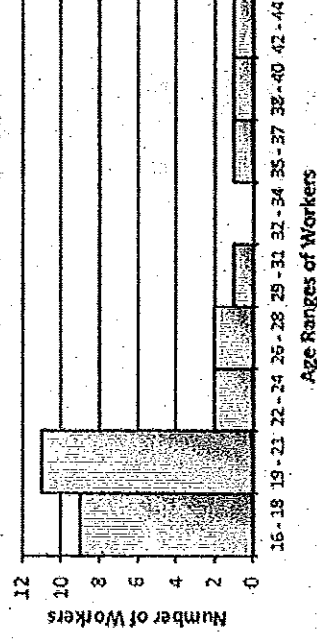
6.85

• Determine the median score:

7

20. Base your answers on this histogram below:

Ages of Workers at Charlie's Food Factory



• How many workers have ages between 29 and 31 years?

1

• How many total people work in the factory?

28

• Which interval contains the median age?

19-21