

Name \_\_\_\_\_

## FREQUENCY

Data is often repeated, again and again. There are ways of organizing this repetition and analyzing this repetition using *frequency tables and histograms*.

### Problem #1: Mean, Median, Mode on a Frequency Table

Students in Mr. Okafor's algebra class were trying to determine if people speed along a certain section of roadway. They collected speeds of 20 vehicles, as displayed in the table below.

Speed (mph)	Number of Cars
29	1
33	2
34	4
35	5
36	3
38	2
39	2
54	1

#### Finding the Mean by Hand from a Frequency Table

(a) STEP 1: Find the total speeds collected from all 20 vehicles. Instead of putting  $29 + 33 + 33 + 34 + 34 + 34 + 34 + \text{etc.}$  into your calculator, use multiplication to more easily find the sum. **Total Speeds** =

(b) STEP 2: Find the total number of cars by adding the *second* column. This is similar to counting the total number of dots on a dot plot. **Total Cars** =

(c) STEP 3: Find the mean. **Mean** =

#### Finding Median by Hand

(a) Based on the total number of cars, which car is the exact middle?

(b) Based on your response in (a), what is the median?

#### Finding Mode by Hand

(a) Which column should you focus on to identify the mode? Therefore, what's the mode?

### Mean, Median, Mode on a Frequency Table

- Frequencies can be multiplied by their values to easily find total values.
- If you know the total number of data points, the median is halfway, which can be easily identified in a frequency table.
- The mode is the value associated with the highest frequency.

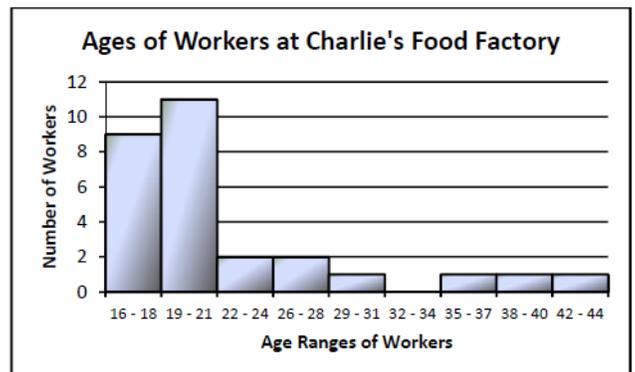
**Problem #2:** The following **histogram** shows the ages of the workers at Charlie's Food Factory.

(a) How many workers have ages between 19 and 21 years?

(b) How many workers are below the age of 22?

(c) How many total workers are at Charlie's Food Factory?

(d) Charlie claims that one of his workers is 20 years old. Does the histogram provide enough information to support Charlie's claim? Explain.



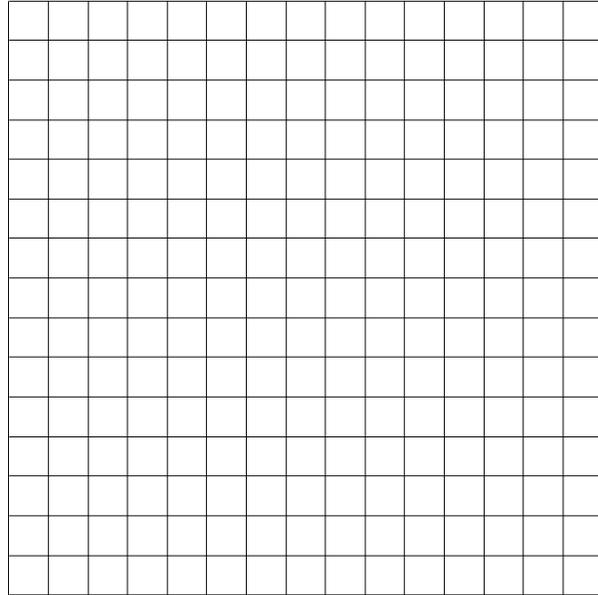
**Problem #3:** The 2006 – 2007 Arlington High School Varsity Boy’s basketball team had an excellent season, compiling a record of 15 – 5 (15 wins and 5 losses). The total points scored by the team for each of the 20 games are listed below in the order in which the games were played:

76, 55, 76, 64, 46, 91, 65, 46, 45, 53, 56, 53, 57, 67, 58, 64, 67, 52, 58, 62

(a) Complete the frequency table below.

POINTS SCORED	TALLY	FREQUENCY
40 - 49		
50 - 59		
60 - 69		
70 - 79		
80 - 89		
90 - 99		

(b) Construct the histogram below.



**Problem #4:** A random survey of 100 cars found the following frequency distribution for the fuel efficiency of the car, as measured in miles per gallon. Construct a histogram below that effectively shows the distribution of this data set.

Fuel Efficiency (miles per gallon)	Number of Cars
10 to 14	4
15 to 19	17
20 to 24	36
25 to 29	24
30 to 34	10
35 to 39	6
40 to 44	3

