Statistics Honors Histograms (Day 4) Name KEY

Mixed Partner Practice: ***Complete #1 a-c & #2d-e ON GRAPH PAPER**

*** 1.** The U.S. Food and Drug Administrations (USFDA) limits the amount of caffeine in a 12-ounce can of carbonated beverage to 72 milligrams. That translates to a maximum of 48 milligrams of caffeine per 8-ounch serving. Data on the caffeine content of popular soft drinks (in milligrams per 8-ounce serving) are displayed in the stemplot below.

1	556
2	033344
2	5566777888|8899
3	113
3	55567778
4	33
4	77

a. Why did we split stems?

b. Give an appropriate key for this graph.

c. Describe the shape, center, and spread of the distribution. Are there any outliers?

2. The duration of 40 phone calls (in minutes) for technical support is given below.

12.0	3.3	0.5	48.7	16.7	1.2	14.8	8.2	9.0	5.7
11.5	17.5	3.2	20.8	7.3	8.0	0.2	51.2	3.3	5.2
12.3	24.5	13.3	7.7	13.5	4.3	13.7	10.7	18.8	15.7
3.2	38.7	16.2	23.3	9.7	4.7	6.5	0.5	45.1	5.3

a. Complete the frequency distribution table for the call duration data.

Duration (minutes)	Tally	Frequency
[0, 6)	𝍸 𝍸 |||	13
[6, 12)	𝍸 ||||	9
[12, 18)	𝍸 𝍸	10
[18, 24)	|||	3
[24, 30)	|	1
[30, 36)		0
[36, 42)	|	1
[42, 48)	|	1
[48, 54)	||	2

b. How many phone calls lasted less than 12 minutes? 22 13+9

c. How many phone calls lasted a half hour or more? 4 1+1+2

d.** ***Construct histogram on graph paper.

***e.** Describe the distribution.

3. You are trying to buy a new vehicle: name <u>three categorical</u> variables and <u>three quantitative</u> variables that you could measure each car by. **Give units for the quantitative variables**.

Categorical	**Quantitative**
make	Highway mileage (mpg)
model	Cylendars (#)
color	weight (lbs.)

4. What are all the key pieces of information that should be given when describing a distribution?

- Shape
- outliers
- center
- spread

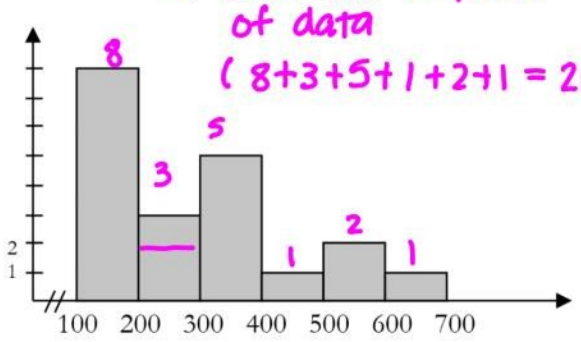
"SOCS"

5. What key features must always be included when **drawing** a histogram? Stemplot?

Histogram	**Stemplot**
• Title (very specific)	• Title (specific)
• labels (x + y axis)	• Key
• scales	
• break indicator (if needed)	

6. Find the **center** of the given histogram.

* there are 20 pieces of data
(8+3+5+1+2+1 = 20)



Center: [200, 300)

* the 10th piece of data is in the [200, 300) class

Statistics Honors Histograms (Day 4) **KEY**

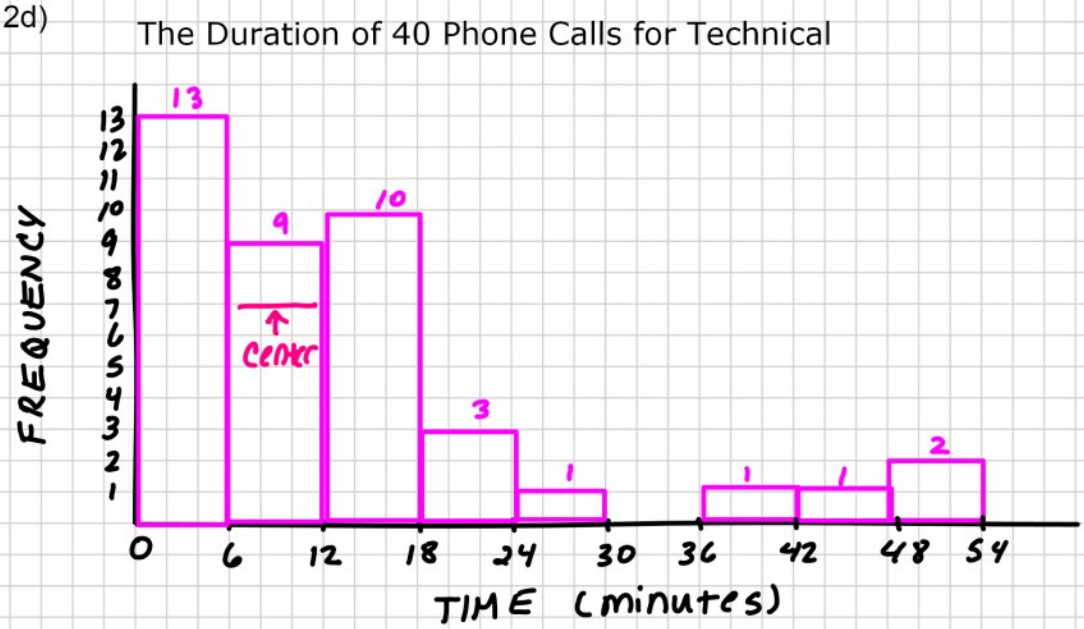
1a) If we had not split the stems, most of the data would appear on just a few stems making it hard to identify the shape of the distribution.

1b) Key: 2|3 means that an 8-ounce serving of that soft drink has 23 mg of caffeine.

1c) SHAPE: This distribution is unimodal and slightly skewed to the right.
OUTLIERS: There do not appear to be any outliers.
CENTER: The center is 28 mg. and the values vary from 15 mg to 47 mg.
SPREAD: The values vary from 15 mg to 47 mg.

Because all of the values are below 48 mg, all of these drinks meet the USFDA's limit.

2d)



1e) SHAPE: This distribution is unimodal and skewed to the right.
OUTLIERS: There do not appear to be any outliers.
CENTER: The center is in the [6 , 12) class.

SPREAD: The times vary from 0 to 54 minutes.

* 40 pieces of data
13 + 9 + 10 + 3 + 1 + 1 + 1 + 2
* center is between 20th + 21st box