

## Warm Up 4/("once" in English)

1.  $\frac{x^2y^6x^{10}}{x^3y}$

Supplies:  
Calculator

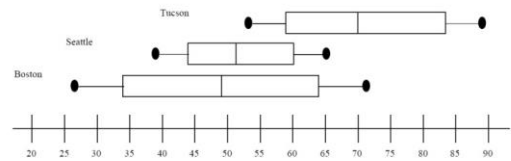
2.  $(3z)^4$

3.  $(4a^4)^2(2a^3)^3$

Check Homework 

## Revisit Box Plots

Boxplot: Average Daily Temperature for Each Month of the Year in Three Cities

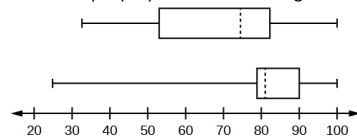


## Measures of "Spread"

- We use **measures of center** to talk about a "typical" value of a set of data
  - Mean, median, mode
- We use **measures of spread** to talk about how spread out the data is.
  - 28, 29, 30, 31, 32 vs. 10, 20, 30, 40, 50
- The "spread" is another very important piece of the whole "story" of the data. If you know the typical value and how spread out the data is, you get a more complete picture of the data.

## 2 Common Measures of Spread

- **Range = Highest value – lowest value**
- **IQR = Interquartile Range = 3<sup>rd</sup> quartile – 1<sup>st</sup> quartile**
  - (Add to notes from yesterday)
- The range can be easily skewed by outliers, but the IQR is not. Most statistics people prefer IQR over range.



### Explore Exploring Data

Caleb and Kim have bowled three games. Their scores are shown in the chart below.

Name	Game 1	Game 2	Game 3	Average Score
Caleb	151	153	146	150
Kim	122	139	189	150

Complete the table.

Caleb and Kim have bowled three games. Their scores are shown in the chart below.

Name	Game 1	Game 2	Game 3	Average Score
Caleb	151	153	146	150
Kim	122	139	189	150

Caleb's/ Kim's scores are more consistent.  
 Caleb's scores are farther from /closer to the average than Kim's.  
 They bowl a fourth game, where Caleb scores 150 and Kim scores a 175. How does this affect their averages?  
 Caleb's average stays the same.       Kim's average increases.  
 Does the Game 4 score affect the consistency of their scores? Explain.  
No, Caleb's scores are still consistent, and Kim's scores are still inconsistent.

Caleb and Kim have bowled three games. Their scores are shown in the chart below.

Name	Game 1	Game 2	Game 3	Average Score
Caleb	151	153	146	150
Kim	122	139	189	150

**Reflect**

- Discussion Is the average an accurate representation of Caleb's bowling?  
Yes, Caleb is a consistent bowler, and his scores are all very close to his average.
- Discussion Is the average an accurate representation of Kim's bowling?  
No, Kim is an inconsistent bowler and has a fairly wide range of scores.

The following numbers represent the number of sit-ups Maria did over a 7-day period: 55, 50, 0, 65, 64, 0, 53. Which measure of center most accurately describes the "typical" number of sit-ups Maria did: mean, median, or mode? Justify your reasoning.

## Bivariate Data

So far this week, we have been doing data in which there is one variable. In statistics, bivariate data is data that has two variables.

## Remember: Scatter Plots

Linear

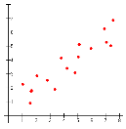
Exponential

## Remember: Positive, Negative, No Correlation

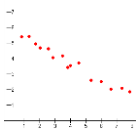
### Types of Correlations

- **Positive** – the dots mostly increase from left to right
- **Negative** – the dots mostly decrease from left to right
- **No correlation** – there is no pattern

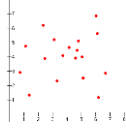
#### Positive



#### Negative



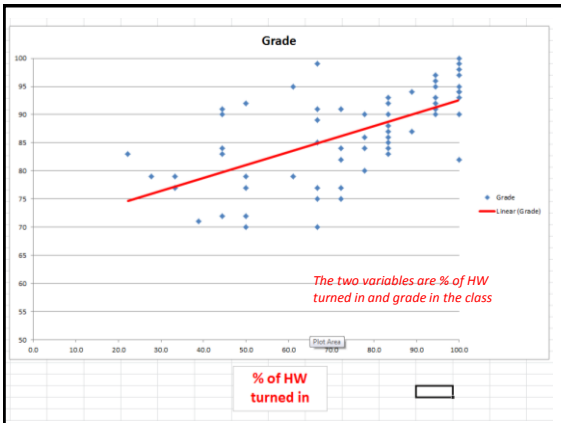
#### No Correlation



## Remember: Lines of Best Fit

A line that goes through the middle of the data

Best linear trend of the data



## New: Frequency Tables

Fill in the Totals.

Gender	Language			Total
	Chinese	French	Spanish	
Girl	2	8	15	
Boy	4	4	12	
Total				

## ➤ Guided Notes

The manager of a store selling sports equipment conducted a survey. She asked 145 girls if they had ever been fishing and if they had ever been skiing. There are 46 girls who said they had been fishing, and of those 16 have been skiing too. Of all those surveyed 70 said they had been skiing.

		Fishing	
		Yes	No
Skiing	Yes	16	54
	No	30	45

Rounded to the nearest whole number, what is the percent of girls surveyed who had never been fishing?

Rounded to the nearest whole number, what is the percent of girls surveyed who had never been skiing?

The table shows the rankings and tuitions of the top 125 universities in the United States.

Rankings and Tuitions of the Top 125 Universities in the United States

Ranking	Tuition			
	<\$30,000	\$30,000– \$29,000	\$30,000– \$39,000	>\$40,000
1–25	0	0	8	17
26–50	0	6	10	9
51–75	3	12	6	4
76–100	4	8	12	1
101–125	8	8	9	0

What is the relative joint frequency of attending a university in the top 50 and paying less than \$40,000 in tuition?

A 0.19

B 0.21

C 0.26

D 0.48

A

## Homework

➤ Data Displays Worksheet (start in class)