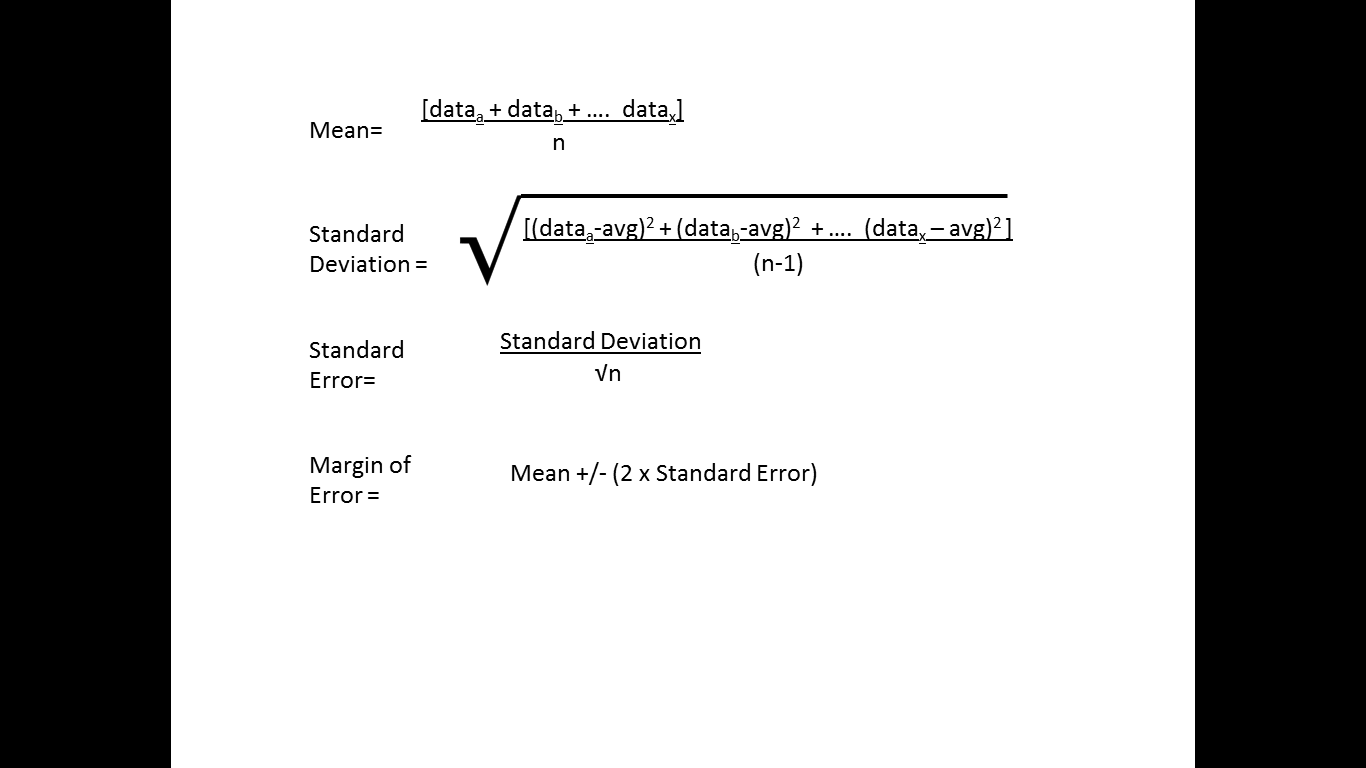
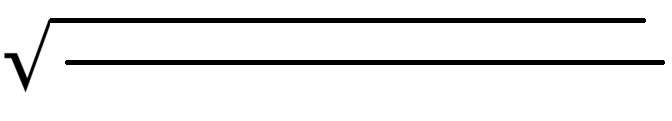
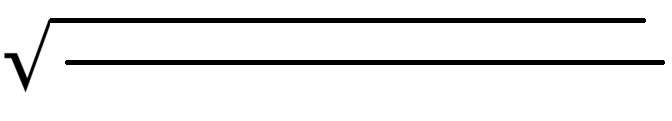
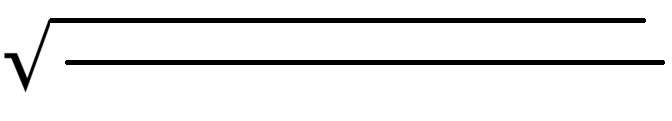
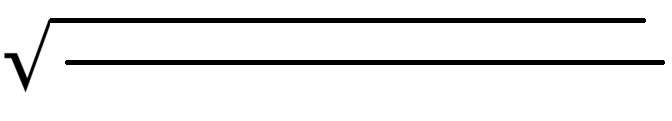
Research Statistics & Graphing Worksheet *by C. Kohn*

Name: Hour Date:

Date Assignment is due: Why late? Score: + ✓ -  
 Day of Week Date If your project was late, describe why

**Directions**:

1. You are trying to determine the average shoe size of your grade. Use the shoe sizes listed below to determine the mean shoe size for grade:  
     
   11 8 10 7   
     
   Mean shoe size (show your work below): (11 + 8 + 10 + 7) = \_\_\_\_\_\_\_\_\_\_\_\_\_ ÷ 4 = \_\_\_\_\_\_\_\_\_\_\_\_\_ 🡸 **Mean**
2. **Calculate the standard deviation for this data set. Standard deviation can be calculated using the following formula:  
     
     
   Standard Deviation Value: (show your work below):

(3)

*=*

*=*

*=*

*=*

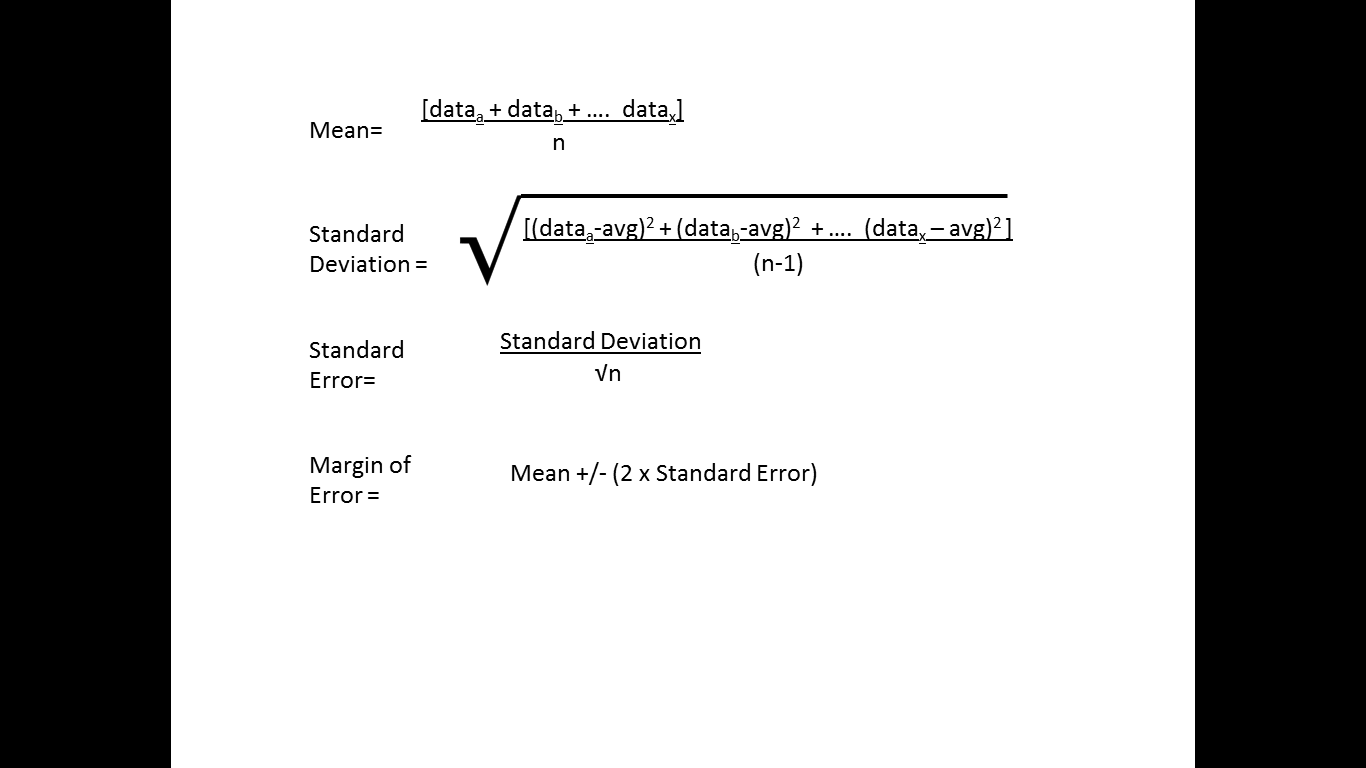
*=*

( )2 + ( )2 + ( )2 + ( )2

(3)

(4-1)

( - )2 + ( - )2 + ( - )2 + ( - )2

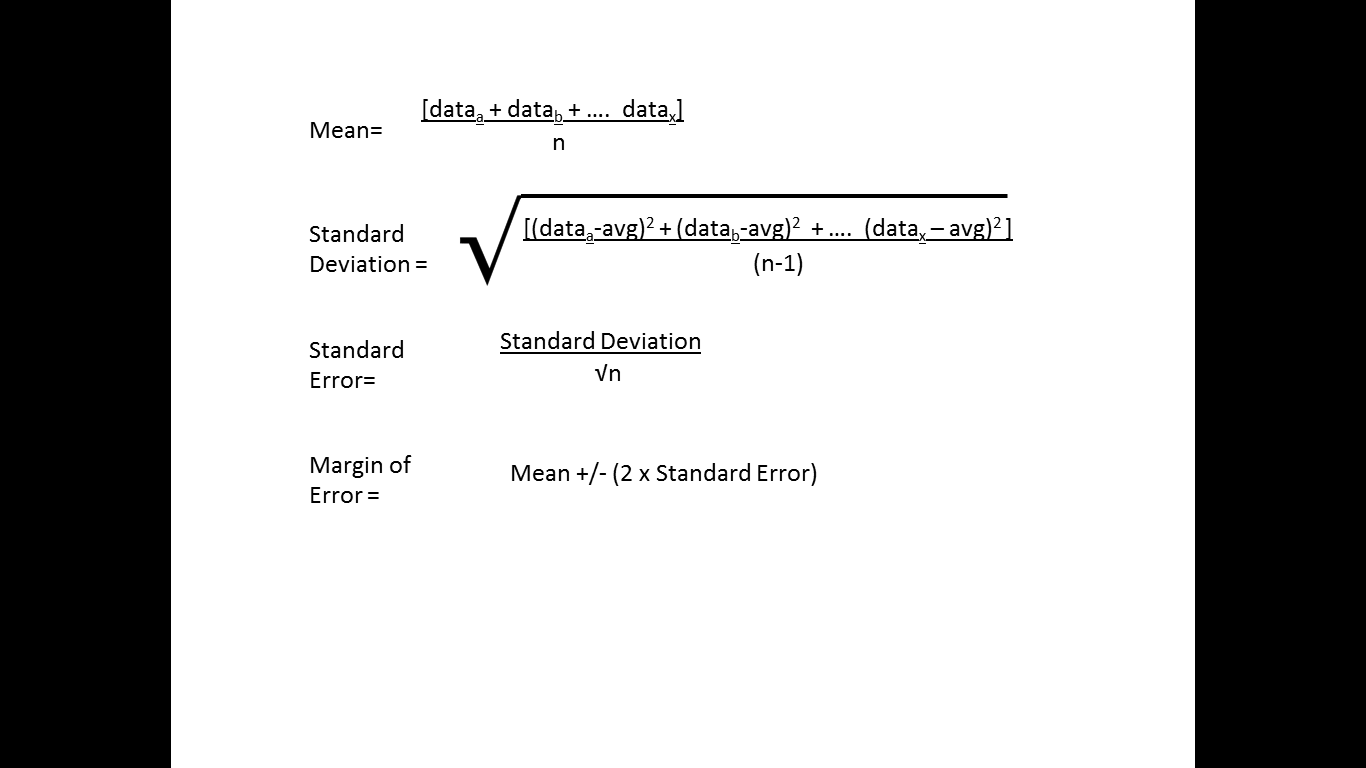
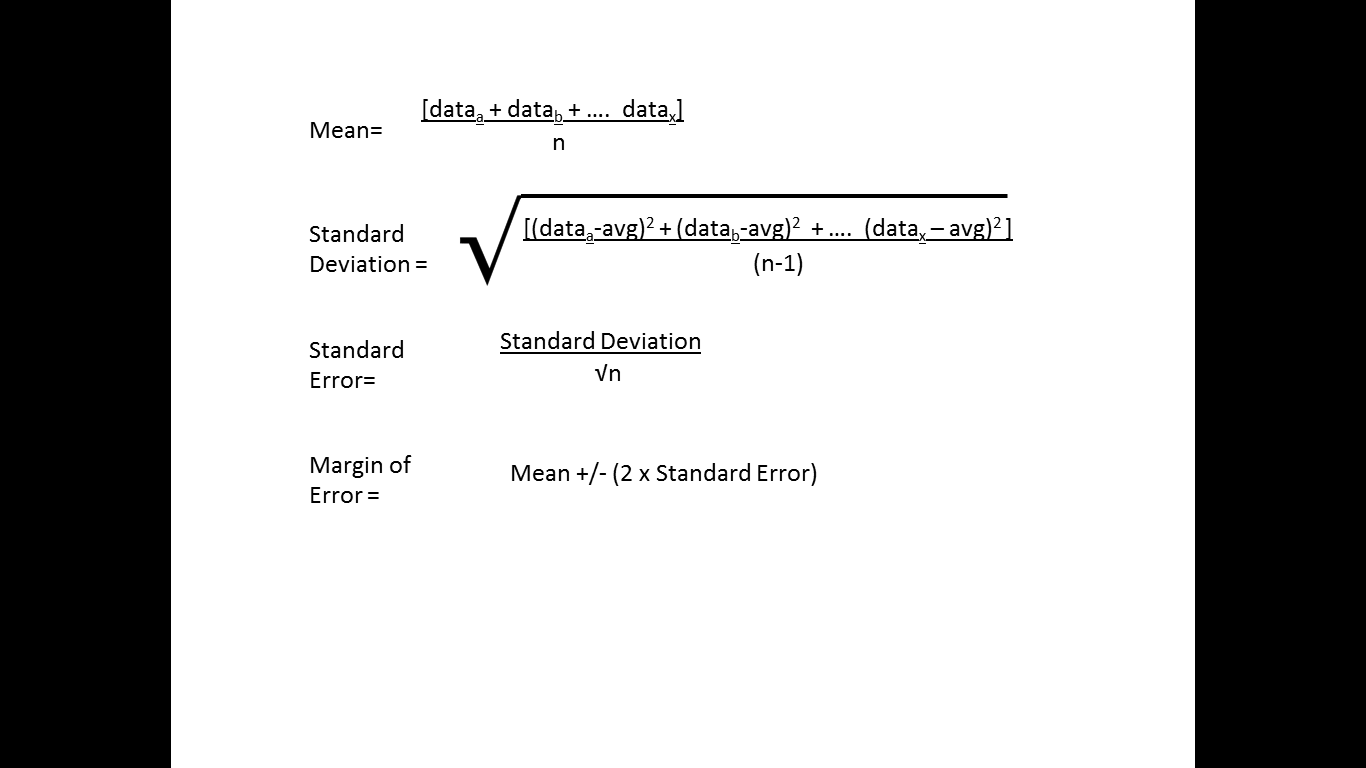
1. Calculate the standard error for this data set. Standard error can be calculated using the following formula:

Standard Error Value: (show your work below):  
  
Standard deviation = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ ÷ √(4) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡸 **Standard Error**

1. If your margin of error is +/- 2 Standard Error values, what is your range for your data? *(HINT: multiple your SE value by 2 and subtract from your mean to find your low range; multiply SE by 2 and add to your mean to find your upper range)*.  
     
   Range of Data (+/- 2 SE):   
     
   *Show your work here:  
     
   Standard error = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
     
   2 x Standard Error = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
     
   Mean = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   
     
   Mean + [2 x standard error] = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

*Mean - [2 x standard error] = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

***Range of data*** *= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
 Mean – [2 x SE] Mean + [2 x SE]*

1. You suspect that your grade has a larger shoes size on average than a different grade at the high school. To check, you sample another group at random. Their shoes sizes were:   
     
   13 8 12 9   
     
   Mean shoe size of Group 2 (show your work below):
2. Calculate the standard deviation for this data set. Standard deviation can be calculated using the following formula:  
     
     
     
   Standard Deviation Value of Group 2: (show your work below):
3. Calculate the standard error for this data set. Standard error can be calculated using the following formula:  
     
     
   Standard Error Value of Group 2: (show your work below):
4. If your margin of error is +/- 2 Standard Error values, what is your range for your data? *(HINT: multiple your SE value by 2 and subtract from your mean to find your low range; multiply SE by 2 and add to your mean to find your upper range)*.  
     
   Range of Data of Group 2 (+/- 2 SE):   
     
   *Show your work here:  
     
   Standard error = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
     
   2 x Standard Error = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
     
   Mean = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   
     
   Mean + [2 x standard error] = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

*Mean - [2 x standard error] = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

***Range of data*** *= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
 Mean – [2 x SE] Mean + [2 x SE]*

1. Summarize your data by filling in the blanks below:  
     
   Mean of Group 1: Standard Dev: Standard Error:   
     
   Range of Group 1 (+/- 2 SE): to   
     
   Mean of Group 2: Standard Dev: Standard Error:   
     
   Range of Group 2 (+/- 2 SE): to
2. In the space below, create a bar graph for your two sets of data.
   1. Be sure to label your x-axis as “Group” and your y-axis as “Average Shoe Size”.
   2. After your draw both bars, also draw your error bars (+/- 2 std error values).
3. Are your two groups statistically different or statistically the same? How do you know?  
     
   \_   
     
   \_   
     
   \_