Name_____ Pd_____ Date_____ **Section 2.E.9**

**Scatter Plots on the Graphing Calculator**

**Using the data from Mrs. Phillips' first grade class, we will use the graphing calculator to display the data and determine the line of best fit.**

**Clear the memory of your calulator before starting.**

To clear Mem: 2nd → + → 7 → 1 → 2

Turn on Diagnostics: 2nd → 0
Scroll to DiagnosticOn
Hit Enter

## 1. Enter the data. Choose STAT and select 1: Edit…

Enter the height data under L1 and the weight data under L2.

| Name | Height (L1) | Weight(L2) | Name | Height (L1) | Weight(L2) |
|---|---|---|---|---|---|
| Lisa | 44 | 47 | Meg | 48 | 62 |
| Simone | 50 | 57 | Mara | 51 | 47 |
| Meredith | 38.5 | 32 | Steph | 53 | 65 |
| Penny | 39 | 42 | Callie | 50.5 | 49 |
| Sheila | 41 | 36 | Cynthia | 46.5 | 52 |
| Tara | 45.5 | 49 | Joy | 45 | 43 |

Tips:

Make sure all of the data lines up properly.

If you need to delete an entry use DEL. To insert a missing entry use INS (2nd DEL).

## 2. Plot the data.

Choose STAT PLOT (2nd Y=)
Select 1: Plot 1...
Turn the graph On. (highlight On and hit Enter)
Note the other settings, we will not change these.
ZOOM 9: ZoomStat

### 3. Calculate the Line of Best Fit

Push the STAT button. This time toggle right to CALC in the menu.
Select 4: LinReg (ax+b) This will calculate an equation in the form y=mx+b. Hit ENTER.
(If you did everything correctly so far, you should have gotten a=1.652 and b=-27.573).

### 4. Plot the Line of Best Fit

Go to $Y_1$= and then hit VARS.
Choose 5: Statistics...
Toggle right to EQ and select 1: RegEQ and GRAPH.
You may also enter the equation manually, but it will not be as accurate in most cases.

### 5. Trace the Line of Best Fit

Hit TRACE. Use the left and right arrows to bounce from point to point.
Use the down arrow to toggle onto the line (not the points).

**Answer:** Round to the tenth.

How much would you expect a first grade girl to weigh for each height given below?

40in _____lbs  42in _____lbs  45in _____lbs

48in _____lbs  50in _____lbs  53in _____lbs

hint: Discover the TABLE function on your own.

**Example 2**

## Latitude and Average Daily Temperature in July for 10 world cities

| Name | Latitude (°N) | July Temp. (°C) |
|---|---|---|
| Oslo | 59 | 7 |
| Berlin | 52 | 18.5 |
| London | 51 | 17 |
| Vancouver | 49 | 17 |
| Tunis | 37 | 26 |
| Tomsk | 56 | 18 |
| Kiev | 50 | 20 |
| Coppermine | 67 | 10 |
| Rome | 41 | 24 |
| Salah | 27 | 37 |

Equation for Line of Best Fit (round to thousandths - 3 places after decimal):

What would be the expected July temperature at each of the given latitudes below?

a. 25°N

b. 54°N

c. 70°N

**What is the correlation coefficient?**

- a number between −1 and 1 that tells how well the equation "fits" the data
- good fit/strong correlation: _____
- poor fit/weak correlation:_____

**What is the correlation coefficient for the equation in Example 2?**

**Do we have a strong or weak correlation?**

**Example 3**

## Latitude and Average Daily Rainfall in July for 10 world cities

| Name | Latitude (°N) | July Rainfall (mm) |
|---|---|---|
| Oslo | 59 | 73.6 |
| Berlin | 52 | 57.4 |
| London | 51 | 59.5 |
| Vancouver | 49 | 31.3 |
| Tunis | 37 | 3.3 |
| Tomsk | 56 | 73.6 |
| Kiev | 50 | 77.1 |
| Coppermine | 67 | 31.9 |
| Rome | 41 | 16.3 |
| Salah | 27 | 0.1 |

Equation for Line of Best Fit (round to thousandths - 3 places after decimal):

What would be the expected July rainfall at each of the given latitudes below?

d. 25°N

e. 54°N

**What is the correlation coefficient for the equation in Example 3?**

**How does the correlation coefficient in Ex. 3 compare to the correlation coefficient in Ex. 2?**