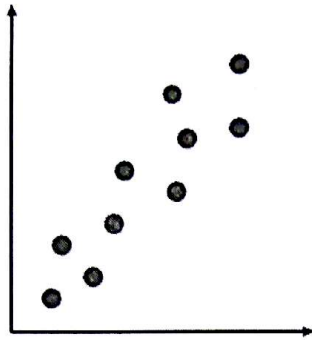


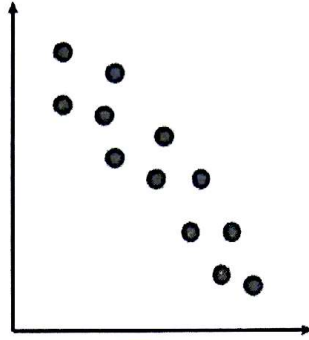
Name: Key
 Unit 11, Day 2 Warm-up

Date:
 Period:

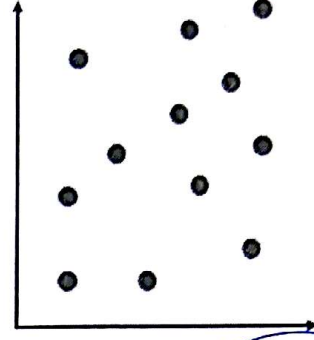
1. For each scatter plot below, circle whether the variables appear to be **positively correlated**, **negatively correlated**, or **not correlated**.



Positive/negative/no correlation



Positive/negative/no correlation



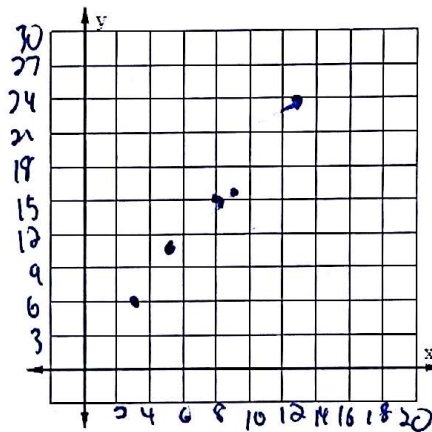
Positive/negative/no correlation

2. Below is a table of data. Use the data to create a scatter plot, then decide whether the data appears to be **linear** or **quadratic**. Plot each pair from the table.

Circle one: LINEAR or QUADRATIC

x	y
3	6
8	15
9	16
5	11
13	24

Note: $y = 1.72x + 1.33$

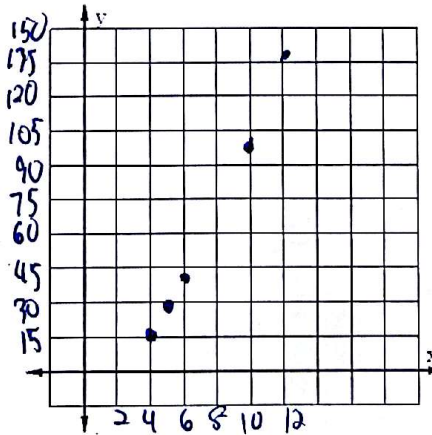


3. Below is a table of data. Use the data to create a scatter plot, then decide whether the data appears to be **linear** or **quadratic**.

Circle one: LINEAR or QUADRATIC

x	y
5	29
12	136
6	41
4	15
10	103

Note: $y = 15.2x - 47.3$



Name: Key
 Unit 11, Day 2 Notes

Date:
 Period:



Learning Targets

- I can use my calculator to find a line of best fit from a table.
- I can use my calculator to find a line of best fit from a scatter plot.

Vocabulary

line/curve of best fit

linear regression

quadratic regression

You can find a line (or curve) of best fit with the calculator! (More calculator tips on the last page.)

Find the line of best fit for the following data.

Time	Mass
9	26
13	32
21	42
30	53
31	56
31	55
34	59

1. Press and enter your data in lists, L1 & L2. (x is L1 & y is L2.)

Your screen should look like this:

L1	L2	L3
9	26	AC/CE
13	32	
21	42	
30	53	
31	56	
31	55	
34	59	
L3(D)=		

2. Next, find the linear regression (line of best fit) by pressing:

LinReg(ax + b)

Then,

This runs a "regression" which gives you your equation of a line in slope- intercept form.

What is your equation? $y = 1.3x + 14.5$

LinReg
$y = ax + b$
$a = 1.309073265$
$b = 14.53808831$

What does " $y = ax + b$ " remind you of?

What does a represent?

Graph your equation in . Does it look correct?

Your turn:

Find the line of best fit for the following data.

Age (x)	Height (y)
2	28
3	33
8	46
10	52
12	55
17	70
19	72

1. Press **STAT** **ENTER** and enter your data in lists, L1 & L2. (is L1 & y is L2.)

2. Next, find the linear regression (line of best fit) by pressing:
STAT **)** **4** LinReg(ax + b)

Then, **↓** **↓** **↓** **↓** **ENTER**.

EDIT **TESTS**

1:1-Var Stats

2:2-Var Stats

3:Med-Med

4:LinReg(ax+b)

5:QuadReg

6:CubicReg

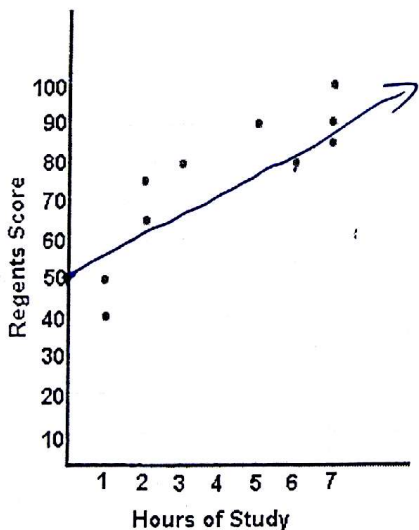
7:QuartReg

What is your equation? $y = 2.6x + 24.6$

Graph it on **Y=**. Does it look correct?

What if I am given only a scatter plot?

Using the data plotted on the scatter plot, which equation most closely describes a line of best fit for the data?



A. $y = -2x + 30$

B. $y = 6x + 50$

C. $y = 2x + 50$

D. $y = -6x - 30$

What if the data does not look like a straight line?

Make a scatter plot of the following data:

x	Y
5	68
12	12
7	80
11	55
2	2

Enter your data. What do you notice about your scatter plot?

Choose **5: QuadReg** this time to find the *quadratic* regression.

This gives you a , b , and c for $ax^2 + bx + c$.

What is your equation? $y = -2.9x^2 + 42.9x - 73$

Graph it on . Does it look correct?

Your turn:

Find the equation for line or curve of best fit for the following data.

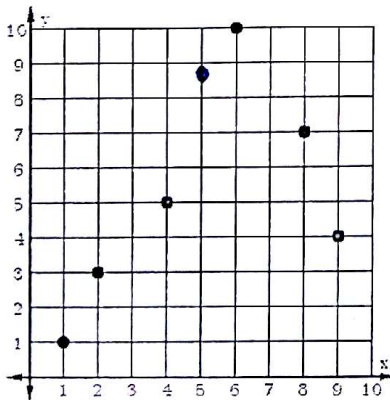
x	y
1	1
3	4
4	8
2	3
6	5
7	2
5	7

Is this data linear or quadratic?

What is your equation?

$$y = -0.6x^2 + 5.1x - 4.3$$

1. Find the equation for line or curve of best fit for the following data.



a. What is your equation?

$$y = -0.3x^2 + 3.9x - 3.2$$

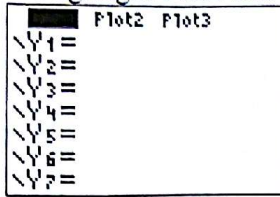
b. Estimate the value of y when x is 4.

$$f(5) = 8.8$$

More Calculator Tips

To see scatter plot:

1. Highlight Plot1 and press enter to turn it off and on.

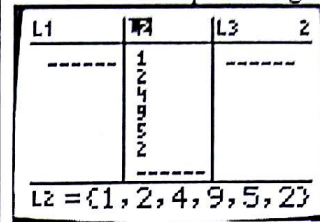


2. Then, press **Y=**.

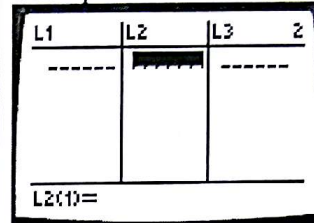
3. Make sure Plot1 is turned off when you are done using it or you will receive an error.

To clear your lists:

1. Press up and highlight the list name.



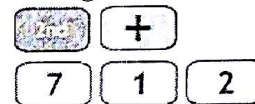
Then press



To see all of your points on your scatter plot, use:



To clear the calculator memory and reset all settings:



Name: Key

Date:

Unit 11, Day 2 Extra Practice

Period:



Learning Targets

- I can use my calculator to find a line of best fit from a table.
- I can use my calculator to find a line of best fit from a scatter plot.

1. Find the equation for line or curve of best fit for the following data.

Ages and length of tails of tadpoles:

Age (# of days)	Length of Tail (meters)
5	14
2	15
9	3
7	8
12	1
10	3
3	12

a. What is your equation? $y = -1.5x + 18$

Using your equation, estimate the tail length of an 8-day-old tadpole. (plug in $x = 8$)

b. Estimate the length when tadpole is 8 days old. 6

2. Find the equation for line or curve of best fit for the following data.

Height of a ball x seconds after being thrown in the air:

x (sec)	y (meters)
0	0
1	26.1
2	42.4
3	48.9
5	32.5
6	9.6

a. What is your equation? $-4.9x^2 + 31x$

b. Estimate what the height of the ball will be after 4 seconds.

45.6

Find the equation for line or curve of best fit for the following data.

Annual income, in thousands of dollars, and expenditures, in hundreds of dollars, for ten people:

Income	22	14	16	18	20	19	16	18	19
Expenditures	75	59	67	69	75	73	62	64	70

a. What is your equation? $y = 2.2x + 29.5$

b. Estimate the expenditures for someone who makes \$30,000 per year. \$9,550

3. Find the equation for line or curve of best fit for the following data.

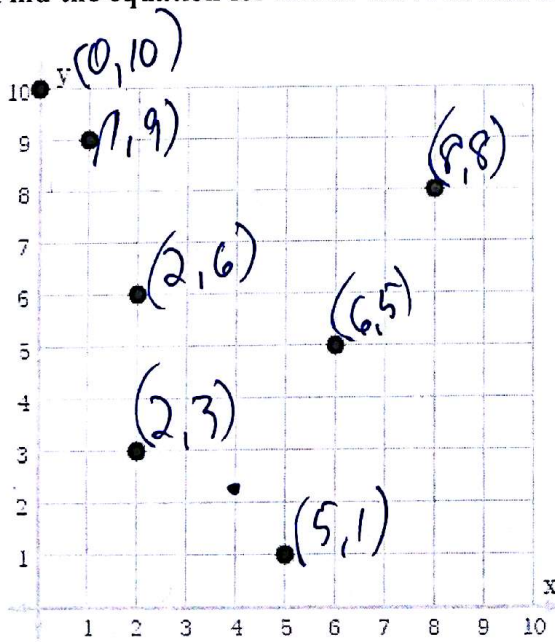
Result of two tests given to a group of Mathematic students:

Test 1 (x)	60	50	80	80	70	60	100	40	90
Test 2 (y)	80	70	70	100	50	80	100	60	80

a. What is your equation? $y = 0.5x + 41.7$

b. Estimate the result of test 2 for someone who made a 95% on test 1. 89.2

4. Find the equation for line or curve of best fit for the following data.



b. What is your equation?
 $y = 0.45x^2 - 3.9x + 10.8$

c. Estimate the value of y when x is 4.

$f(4) = 2.4$

Name: Key

Unit 11, Day 2 Exit Ticket

Date:

Period:

I can use my calculator to find lines and curves of best fit.

1. Decide if the data is **linear** or **quadratic**, then find the equation of best fit:

x	y
1	6
5	22
9	48
8	37
2	10

Linear or quadratic? Linear

Equation of best fit: $y = 5x - 0.3$

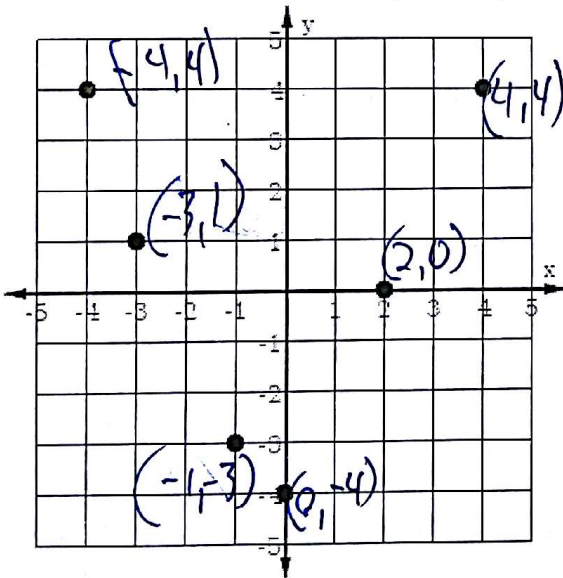
2. Decide if the data is **linear** or **quadratic**, then find the equation of best fit:

$\{(4, 32), (20, 808), (17, 662), (8, 125), (13, 307)\}$

Linear or quadratic? Linear

Equation of best fit: $y = 50.5x - 239.9$

3. Decide if the data is **linear** or **quadratic**, then find the equation of best fit.



Linear or quadratic? Quadratic

Equation of best fit: $y = 0.46x^2 + 0.6x - 3.2$