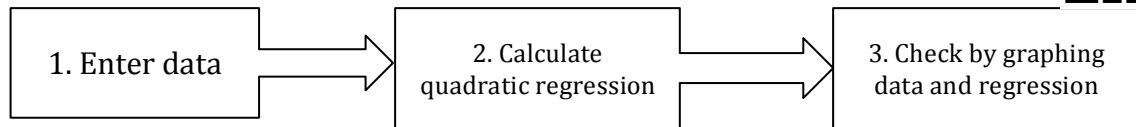


Algebra 2
4-3 Quadratic Models

Name _____
 Date _____ A#9



Using the TI-84 to find the quadratic function that models data



1. Enter Data

- a. Tap STAT button. Select Edit...

CALC TESTS
 1:Edit...
 2:SortA(
 3:SortD()
 4:ClrList
 5:SetUpEditor

- b. Enter data into L1 and L2: (2, -20), (-2, -4), (0, -8). Place the domain in L1 and the range in L2.

L1	L2	L3	1

L1(0) =

L1	L2	L3	2
2	-20		
-2	-4		
0	-8		

L2(0) =

2. Calculate quadratic regression

- a. Select STAT , arrow right to CALC, select QuadReg.

EDIT **CALC** **TESTS**
 1:1-Var Stats
 2:2-Var Stats
 3:Med-Med
 4:LinReg(ax+b)
 5:QuadReg
 6:CubicReg
 7:QuartReg

QuadReg
 Xlist:L1
 Ylist:L2
 FreqList:
 Store RegEQ:
 Calculate

- b. Make sure XList: is L1 and YList: is L2. In the Store RegEQ: insert Y_1 by selecting VARS , arrow right to Y-VARS, select 1:Function..., Y_1 . Then select Calculate

VARS **FUNCTION**
 1:Function...
 2:Parametric...
 3:Polar...
 4:On/Off...

FUNCTION
 1:Y1
 2:Y2
 3:Y3
 4:Y4
 5:Y5
 6:Y6
 7:Y7

QuadReg
 Xlist:L1
 Ylist:L2
 FreqList:
 Store RegEQ:Y1
 Calculate

QuadReg
 $y=ax^2+bx+c$
 a=1
 b=-4
 c=-8

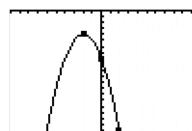
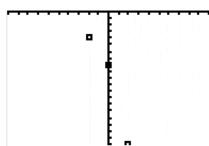
3. Check by graphing data and regression

- a. Select STAT PLOT (2ND, Y=) , select 1:, On

STAT PLOTS
 1:Plot1...On
 Type:
 Xlist:L1
 Ylist:L2
 Mark:

STAT PLOTS
 1:Plot1...On
 L1 L2
 2:Plot2...Off
 L1 L2
 3:Plot3...Off
 L1 L2
 4:PlotsOff

- b. Select GRAPH . Adjust the window by pressing ZOOM → 9: ZoomStat.



Algebra 2
4-3 Quadratic Models

A#9

Find an equation in standard form of the parabola passing through the points. Then approximate the maximum or minimum.

1. $(1, -1), (2, -5), (3, -7)$

2. $(1, -4), (2, -3), (3, -4)$

3. $(2, -8), (3, -8), (6, 4)$

4. $(-1, -12), (2, -6), (4, -12)$

5. $(-1, -12), (0, -6), (3, 0)$

6. $(-2, -4), (1, -1), (3, 11)$

7. $(-1, -6), (0, 0), (2, 6)$

8. $(-3, 2), (1, -6), (4, 9)$

9.

x	f(x)
-1	7
1	5
3	11

10.

x	f(x)
-2	-7
0	1
2	1

13. The table shows the number n of tickets to a school play sold t days after the tickets went on sale, for several days.

- a. Find a quadratic model for the data.
- b. Use the model to find the number of tickets sold on day 7.
- c. When was the greatest number of tickets sold?

Day, t	Number of Tickets Sold, n
1	32
2	64
4	74

14. The table gives the number of pairs of skis sold in a sporting goods store for several months last year.

- a. Find a quadratic model for the data, using January as month 1, February as month 2, and so on.
- b. Use the model to predict the number of pairs of skis sold in November.
- c. In what month were the fewest skis sold?

Month, t	Number of Pairs of Skis Sold, s
Jan	82
Mar	42
May	18