Warm Up

Need
Graphing
Calculator???

*Pick up Properties DLT and Graphing DLT.

Writing Equations DLT-together

Warm Up

*When finished just flip it over and complete the homework quiz.

1)

Pg 244 #3

2)

Pg 249 # 37

3)

Pg 249 #53

4)

Pg 241 #40

* Trade and Grade

Homework Questions

*Word Problems?

Chapter 4
Quadratic Functions
(4.10)Best-fitting Quadratic Model

Best-fitting Quadratic Model

EXAMPLE 4   **Solve a multi-step problem**

PUMPKIN TOSSING A pumpkin tossing contest is held each year in Morton, Illinois, where people compete to see whose catapult will send pumpkins the farthest. One catapult launches pumpkins from 25 feet above the ground at a speed of 125 feet per second. The table shows the horizontal distances (in feet) the pumpkins travel when launched at different angles. Use a graphing calculator to find the best-fitting quadratic model for the data.
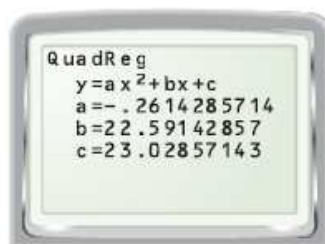
Angle (degrees)	20	30	40	50	60	70	L_1
Distance (feet)	372	462	509	501	437	323	L_2

Step 1: Enter data into L_1 and L_2. (Stat-> 1:Edit)

Step 2: Make a scatterplot of the data. (Stat Plot on and adjust window for data)

Step 3: Use quadratic regression feature to get the best-fitting quadratic model.

QuadReg
y=ax²+bx+c
a=-.2614285714
b=22.59142857
c=23.02857143

(Stat->Calc->5:QuadReg)

▸ The best-fitting quadratic model is $y = -0.261x^2 + 22.6x + 23.0$.

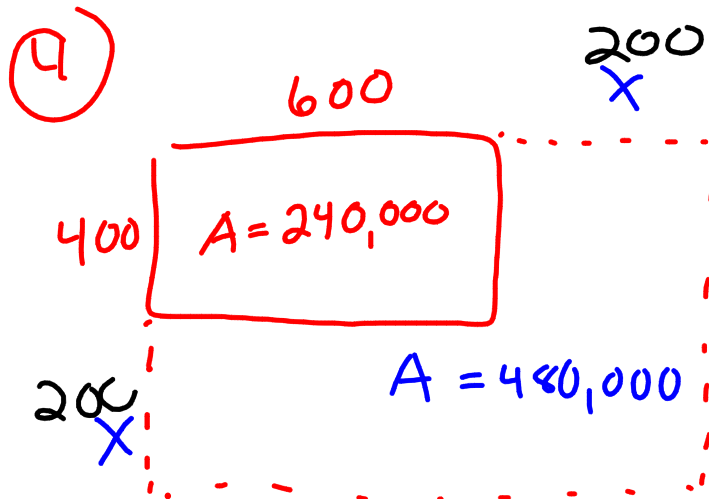# Step 4: Check how well the model fits the data.

(Enter equation into y_1)

Questions:

1.) At what angle does the pumpkin travel the farthest? Explain.

2.) Use the model, how far does the pumpkin travel, when the angle is 80 degrees?

④

200
X

600

400 | A = 240,000

A = 480,000

200
X

$(x+600)(x+400)=480,000$

$x^2 + 1000x + 240000 = 480,000$

$x^2 + 1000x - 240,000 = 0$

600 × 800

X = 200

① $= (1 + .05x)(4000 - 80x)$

$\$ \qquad \text{songs}$

② $\qquad 70 \qquad\quad 5 \qquad\qquad = (320 - 20x)(70 + 5x)$

$\$320 \qquad \$20$

③ $\qquad 150 \quad 10 \qquad\qquad = (20 - 1x)(150 + 10x)$

$\$20 \qquad \$1$

Study Guide

★ Factoring & Solving by Factoring

★ Solve by Square Roots

★ Solve by Completing the Square

★ Solve by Quadratic formula/ discriminant

★ Imaginary Numbers- +/-/x

★ Complex Conjugates $\dfrac{4-i}{2-i}$

$i = \sqrt{-1}$ ★ Solve with Imaginary #'s

★ Word Problems

And your assignment:

Word problem ws

Pg 312 #3, 10-12, 20-23

Pg 314 #49, 50

Homework:

Review ws

(Due on Test Day)