

Agenda:

- 1) Take out HW to be checked
- Questions?
- 2) Do Now:
Think, Write, Pair, Share
- 3) Quadratic Application #3-Profit
From Amazon Tourists

***Homework: Quadratics Applications #2 -
Profit from Cell Phones***

DO NOW: Think... Write... Pair... Share...

A company's Profit can be represented by a quadratic equation- a Parabola.

Sketch a graph of what a profit parabola might look like.

Write why you believe profit would behave this way and not linearly (follow the path of a line).

Share with the person next to you your thoughts and ideas.

518 Quadratic Applications #3

A business offers tours to the Amazon. The profit P that the company earns for x number of tourists on a given tour can be modeled by $P(x) = -25x^2 + 1000x - 3000$

Graph this function on your calculator and answer the questions below.

- What does x represent?
- What does P represent?
- How many tourists must sign up for the tour for the company to maximize its profits?

What is that profit?

What part of the graph gives the above information? _____

- What does the y-intercept represent in this problem? (If no one signs up for the tour, what information is given by the equation and/or graph?)
- If 25 people sign up for the tours, how much profit will be made?

- f. How many people are needed to make a profit of \$3000? (Careful—how many answers should you have?)
- g. How many people will produce a profit of **more than** \$5000? (Look carefully at your graph--is the answer a greater than inequality, or a betweenness inequality?)
- h. Suppose the company guarantees that it will run the tour if at least 2 people sign up. Will the company have to run the tour at a loss or will they make money? How do you know?
- i. How many people on the tour will create a break-even situation? (The company neither makes money nor loses money).

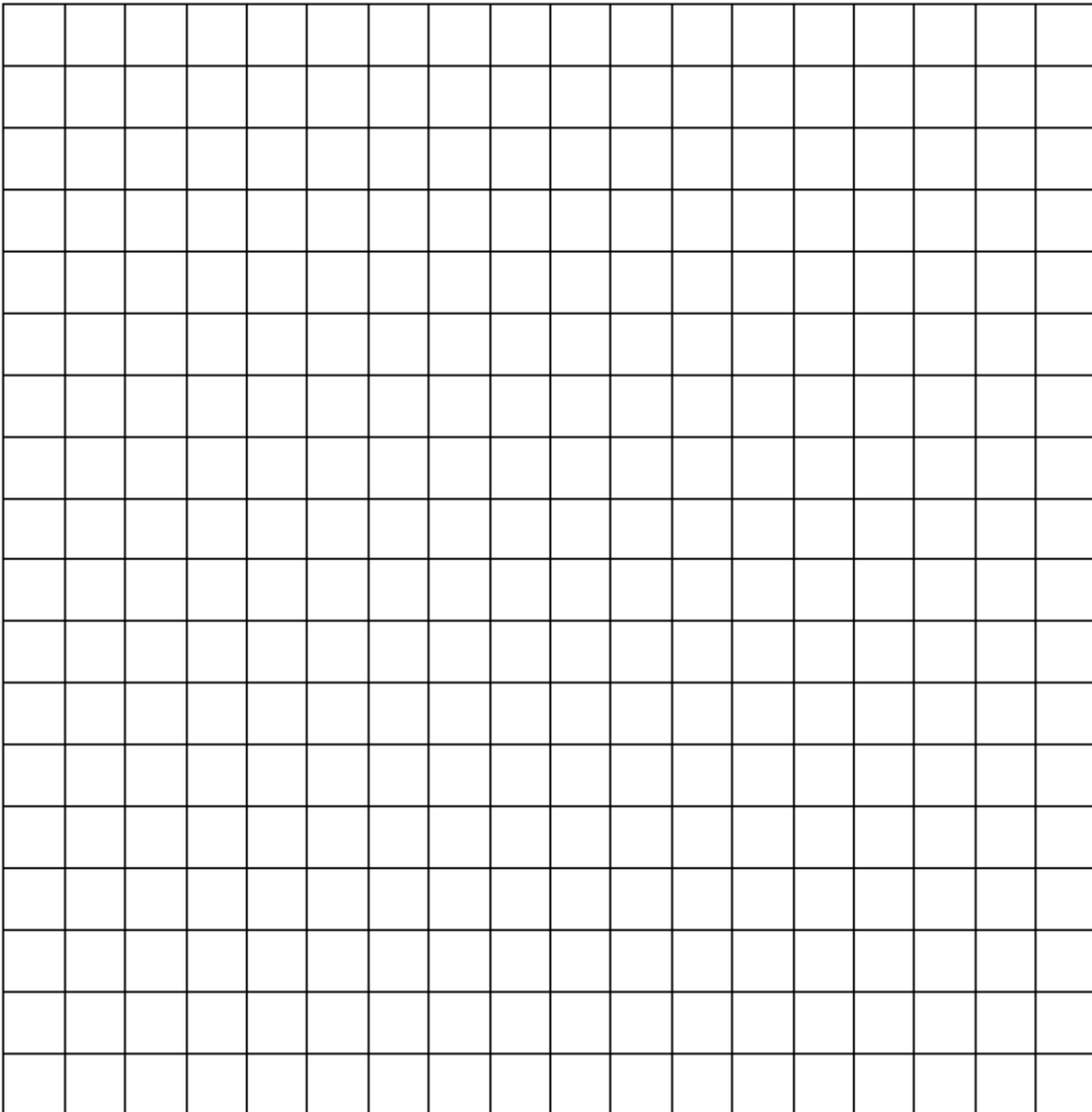
Where on the graph is that information given?

- j. What is a reasonable domain and range for the equation within the context of this problem?

D = _____

R = _____

- k. Graph the equation on the grid below. Label the x and y-axis and the vertex and roots.



Homework: Quadratic Applications #2...continued

- h. Give a reason that a price of \$17 per watch produces less revenue than the answer in part d?
- i. What do the x-intercepts represent on this graph?
- j. What are the x-intercepts?
- k. If the operating expenses for the factory is \$30,000 a year, what prices would produce a profit?
- l. Graph the equation on the grid provided, labeling the axis and the vertex and indicate the scale used on the x and y -axis.

