Written Homework

Your carefully written solutions to the following questions will be due at the beginning of class on Monday, October 13. Show all of your work, and explain your steps as if you were teaching someone else how to solve these problems.

1. Find all the intercepts for each of the following parabolas. Use those intercepts to make a sketch of the parabola. Solve any equations by factoring. Show all your work.
   (a) \( y = x^2 - 6x + 5 \)
   (b) \( y = x^2 - 5x + 6 \)
   (c) \( y = x^2 - 4x - 12 \)

2. Solve the following equations by completing the square. Show all your work.
   (a) \( x^2 + 2x = 8 \)
   (b) \( x^2 - x = 0 \)

3. A certain company sells Gizmos. If they charge $P for a Gizmo, they will be able to sell \( Q = 1000 - 2P \) of them.
   (a) Find a formula for the revenue, \( R \), that the company will receive if they sell Gizmos for $P. (Recall that revenue is price multiplied by the number sold. Your answer to this question will be a function of \( P \).)
   (b) Use your formula to predict the amount of revenue the company will receive if they set the price at $300.
   (c) Use a graphing calculator to estimate the price the company should choose in order to get the maximum revenue. Copy the graph from your calculator neatly by hand, and identify the coordinates of the vertex on the graph.
   (d) Find the coordinates of the \( x \)-intercepts of the parabola by factoring or by completing the square (your choice).
Daily Practice Problems

You should do the suggested reading below and attempt these exercises after class each day. You will not submit solutions to these questions for grading, but you may use them as notes during the weekly quizzes on Fridays.

After class on **Monday, October 6**, review Section 6.6 (if needed) and work the following exercises:

Find all the intercepts for the following parabolas:

\[ y = x^2 - 4 \]
\[ y = x^2 + 4 \]
\[ y = x^2 + 4x + 3 \]
\[ y = x^2 + 4x + 4 \]

After class on **Tuesday, October 7**, read Examples 1, 2 and 3 in Section 7.4 and work the following exercises:

Section 7.4, # 51, 53, 55

After class on **Wednesday, October 8**, work the following exercises:

Section 7.4, # 27, 31

After class on **Thursday, October 9**, finish reading Section 7.4 and work the following exercises:

Section 7.4, # 13, 15, 19, 23

After class on **Friday, October 10**, finish reading Section 7.3 and work the following exercises:

Section 7.3, # 59, 61, 63, 65