



Quadratic Formula

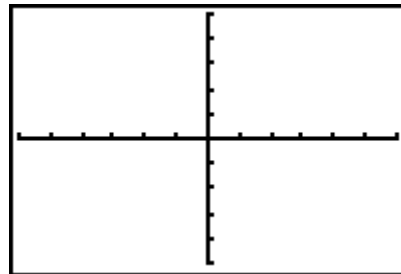
Student Activity

Name _____

Class _____

Exercise 1

1. Identify the zeros of $y = x^2 - 4$ by graphing the equation. If needed, use the **zero** command found under $\boxed{2nd}$ [CALC].



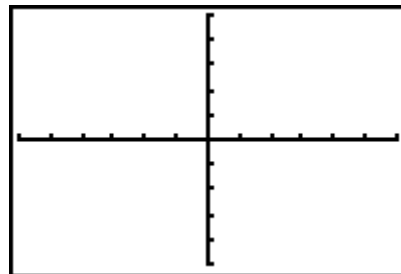
2. You may already know the zero product property, and can demonstrate why the following are the solutions to the equation above:

$$x + 2 = 0 \quad \text{and} \quad x - 2 = 0$$

3. A program, *QUAD*, is provided that has the Quadratic Formula defined. Use **A** = 1, **B** = 0, and **C** = -4. What are the solutions to the equation $y = x^2 - 4$?

Exercise 2

4. Now, examine the graph of $y = x^2 + x - 6$. Graph the equation at the right. Determine the zeros. Write the factored form below.

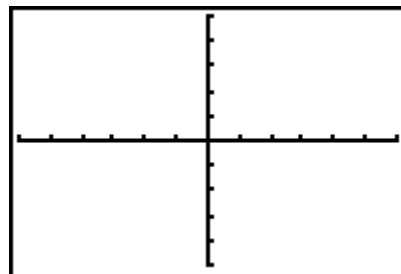


Use the *QUAD* program again. You only need to enter in the correct values for *a*, *b*, and *c*. This should confirm your answers for the *x*-intercepts.

5. What are the solutions to the equation $y = x^2 + x - 6$?

Exercise 3

6. Now, examine the graph of $y = x^2 - 4x + 4$. Graph the equation at the right. Determine the zeros. Write the factored form below.



7. Using the *QUAD* program, what are the solutions to the equation $y = x^2 - 4x + 4$?



Extensions/Homework

Use the formula in L4 (above) to calculate the Discriminant for several other quadratics. Decide if the equation is factorable using integers, then solve it. Factor the quadratic if possible, if not, solve by the quadratic formula. If the quadratic has no real zeros, write "no real zeros."

1. $y = x^2 - 6x + 9$

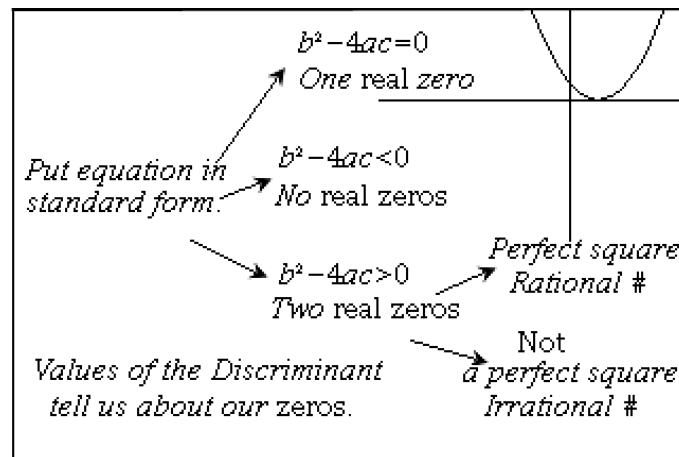
2. $y = 3x^2 + 4x + 5$

3. $y = -4x^2 + 2x + 2$

4. $y = 7x^2 + x - 8$

5. $y = 2x^2 - 5$

Look at the flow chart below and discuss with another student how to use it to answer these homework problems.



6. Sketch a different graph for each of the four scenarios, though one is already pictured.