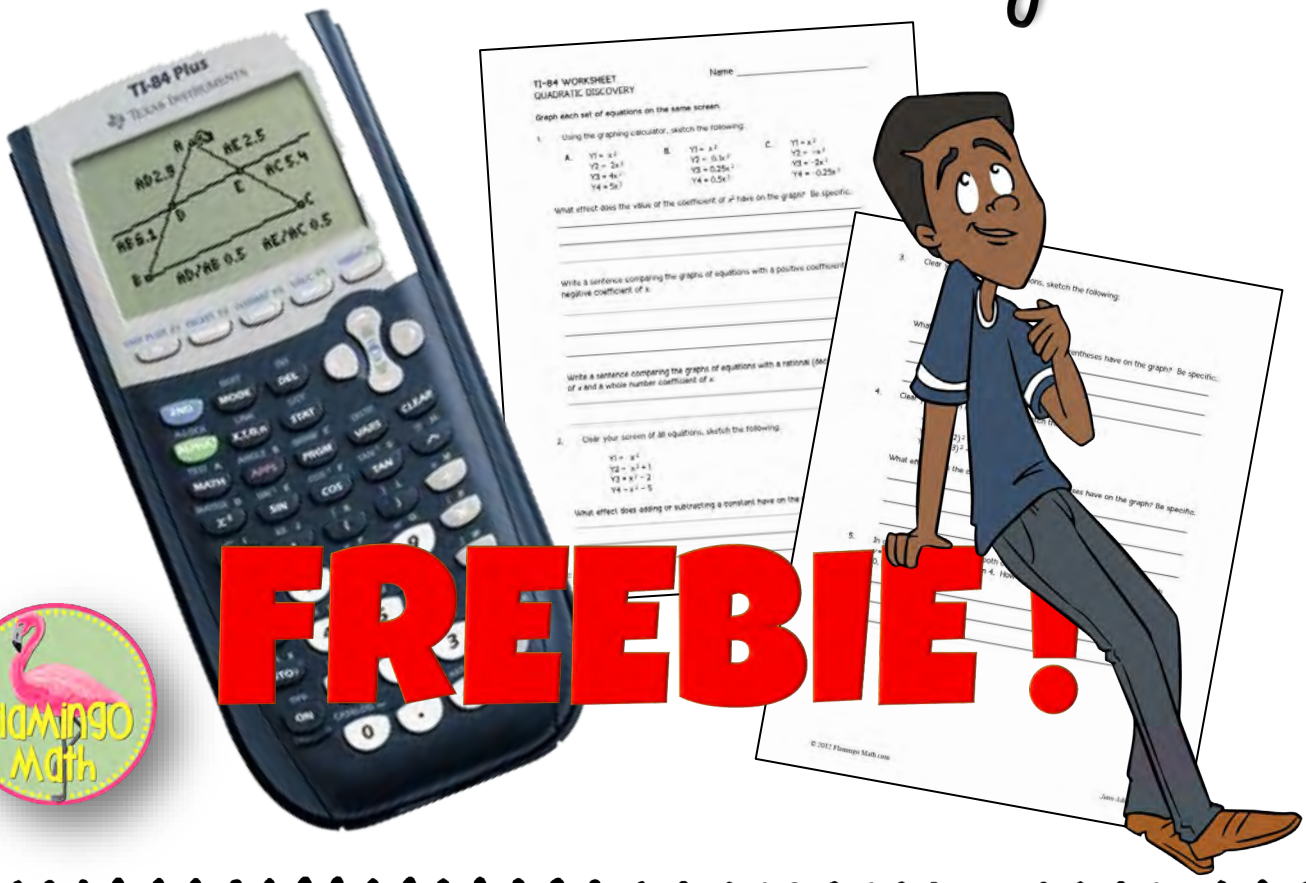
QUADRATIC DISCOVERY

TI-84 Activity



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TI-84 QUADRATIC DISCOVERY ACTIVITY

This is an activity which will help your Algebra 1 or Algebra 2 students discover how the parent function can shift, stretch, reflect, translate, and transform into new functions.
In this activity, students will explore the effects of the leading coefficient, and translations, reflections and stretch factors of the parent function. The activity is meant for Algebra students of all levels.
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Teaching Suggestions:

- Use the activity in groups
- Use the activity as an opening exercise prior to teaching transformations.

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TI-84 WORKSHEET Name _____

QUADRATIC DISCOVERY

Graph each set of equations on the same screen.

1. Using the graphing calculator, sketch the following:

A.
$Y1 = x^2$
$Y2 = 2x^2$
$Y3 = 4x^2$
$Y4 = 5x^2$

B.
$Y1 = x^2$
$Y2 = 0.1x^2$
$Y3 = 0.25x^2$
$Y4 = 0.5x^2$

C.
$Y1 = x^2$
$Y2 = -x^2$
$Y3 = -2x^2$
$Y4 = -0.25x^2$

What effect does the value of the coefficient of x^2 have on the graph? Be specific.

_____

_____

_____

Write a sentence comparing the graphs of equations with a positive coefficient of *x* and a negative coefficient of *x*.

_____

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Write a sentence comparing the graphs of equations with a rational (decimal) coefficient of *x* and a whole number coefficient of *x*.

_____

_____

2. Clear your screen of all equations, sketch the following:

$Y1 = x^2$
$Y2 = x^2 + 1$
$Y3 = x^2 - 2$
$Y4 = x^2 - 5$

What effect does adding or subtracting a constant have on the graph? Be specific.

_____

_____

_____

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3. Clear your screen of all equations, sketch the following:

$Y1 = x^2$
$Y2 = (x - 2)^2$
$Y3 = (x + 3)^2$

What effect does the constant inside the parentheses have on the graph? Be specific.

4. Clear your screen of all equations, sketch the following:

$Y1 = x^2$
$Y2 = (x - 2)^2 + 1$
$Y3 = (x + 3)^2 - 4$

What effect does the constant outside the parentheses have on the graph? Be specific.

5. In general, explain what effect both of the constant values did to the parent graph $y = x^2$ in Problem 3 and Problem 4. How did these values translate the graph from (0, 0)?

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