



12.6 Graphing Quadratic Functions

Goal Use a graphing calculator to investigate the graph of $y = ax^2$.

Investigate

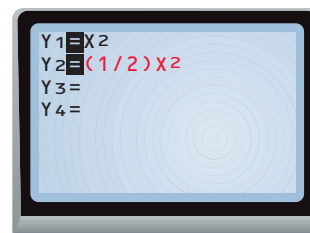
Use a graphing calculator to compare the graph of $y = x^2$ with the graph of $y = \frac{1}{2}x^2$.

1

Enter the functions to be graphed. (Note: Your calculator will not show any colors. Red is used here to distinguish the two functions.)

Keystrokes

Y= x x² ENTER
(1 ÷ 2) x x²

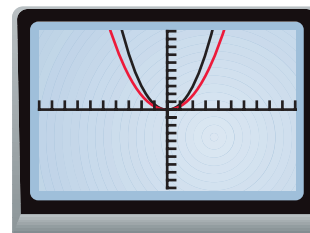


2

Graph the functions using the calculator's standard window.

Keystrokes

ZOOM 6



3

Compare and contrast the graphs.

Both parabolas open up, and both pass through the origin. But the graph of $y = \frac{1}{2}x^2$ is wider than the graph of $y = x^2$.

Tech Help

You can press \wedge 2 instead of x^2 to raise a number or a variable to the second power.



Online Resources
CLASSZONE.COM

- Keystroke Help

Draw Conclusions

Compare the graph of $y = x^2$ with the graph of the given function.

- $y = 4x^2$
- $y = -3x^2$
- $y = -0.5x^2$
- $y = 0.2x^2$
- Analyze** How does the value of a affect the shape of the graph of the equation $y = ax^2$? In your answer, discuss both positive and negative values of a .