Graphing a Quadratic Function by Hand

Is about …

These options allow one to graph any quadratic function. A quadratic function models many of the physical, business, and area problems one see in real world situation. For example: maximize height of a projectile; maximize profit or revenue; minimize cost; Maximize/ minimize area or volume

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Main Idea

Option 1

Details

1. Complete the square in x to write the quadratic function in the form $f(x) = a(x - h)^2 + k$.

2. Graph the function in stages using transformations.

Main Idea

Option 2

Details

1. Determine the vertex $(-b/2a, f(-b/2a))$.
2. Determine the axis of symmetry, $x = -b/2a$
3. Determine the y-intercept, $f(0)$
4. a) If the discriminant > 0, then the graph of the function has two x-intercepts, which are found by solving the equation. b) If the discriminant = 0, the vertex is the x-intercept. c) If the discriminant < 0, there are no x-intercepts.
5. Determine an additional point by using the y-intercept the axis of symmetry.
6. Plot the points and draw the graph.