

Name: _____

Date: _____

Notes

Algebra Section 10.2

Pages 635-640



Goal: “You will graph general quadratic functions.”

Properties of Graphs of Quadratic Functions:

· If $a > 0$ then the _____ will open _____

$a < 0$ then the _____ will open _____

· If $|a| > 1$ then the _____ Will be _____ than _____

$|a| < 1$ then the _____ Will be _____ than _____

· To find the axis of symmetry use:

· The vertex always occurs on the _____ of _____

· so to find the vertex plug in the _____ found by finding the _____ of

_____ to find the _____.

· y-intercept: Still the place where the _____ crosses the _____. $x =$ _____

For each quadratic function, find the axis of symmetry and the vertex. State whether the vertex is a minimum or maximum point.

Ex: $y = x^2 - 2x - 3$

Ex: $y = 3x^2 + 12x - 1$

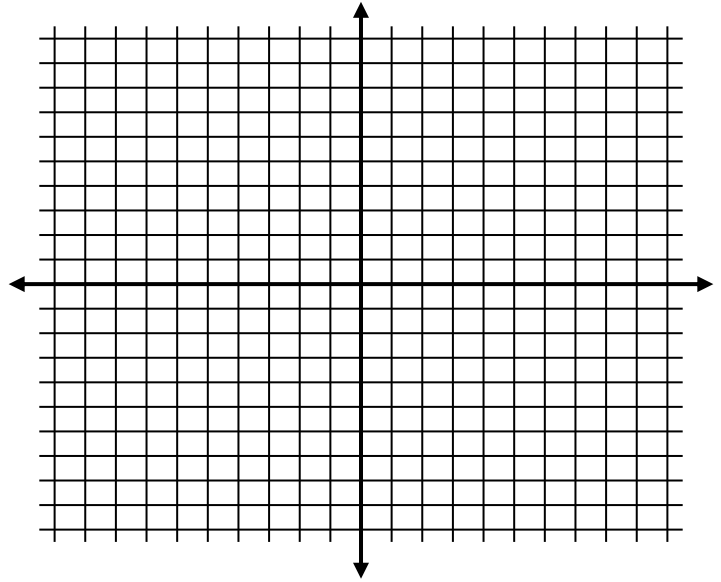
For each quadratic function find the maximum or minimum value. State which it is.

Ex: $y = -3x^2 - 12x + 10$

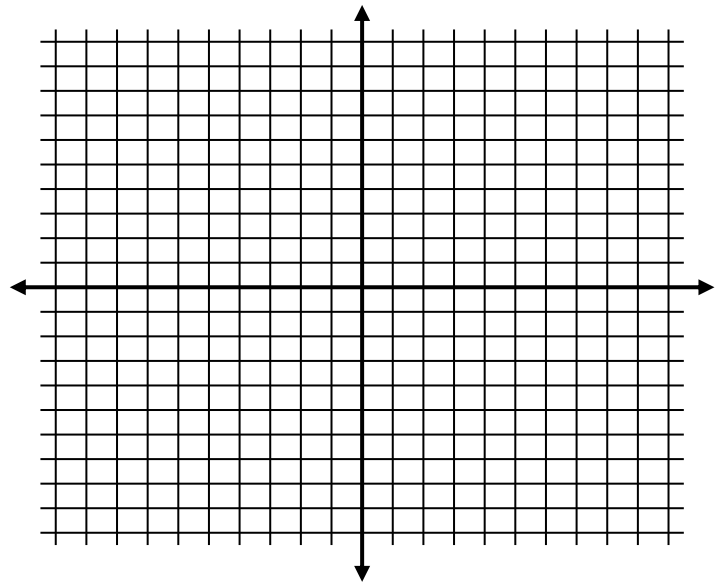
Ex: $f(x) = 2x^2 - 16x + 4$

Graph. First find the vertex then choose 2 – 3 point around the vertex to complete the graph. Use your knowledge of characteristics of parabolas to ensure your final graph makes sense.

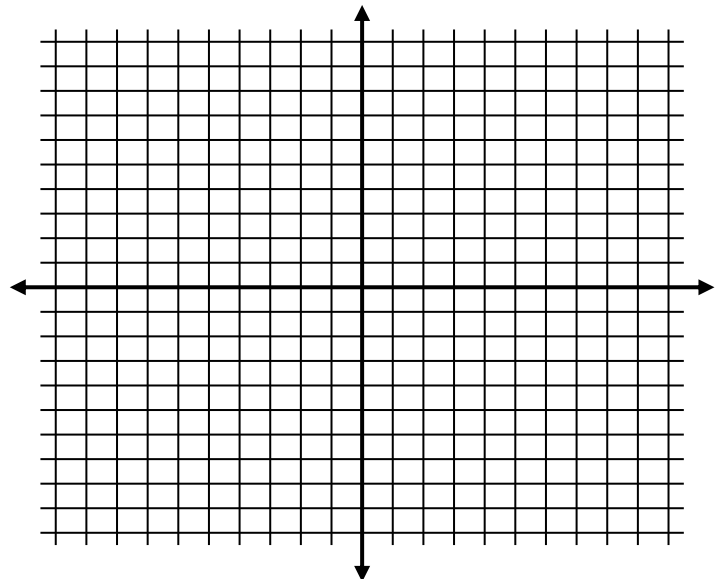
Ex: $y = -2x^2 + 12x - 7$



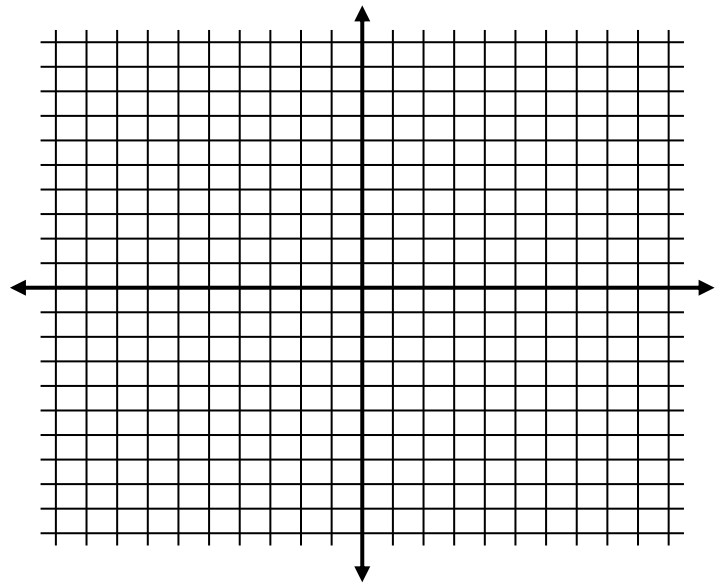
Ex: $y = 3x^2 - 6x + 2$



Ex: $y = 3x^2 + 12x + 8$



Ex: $y = 2x^2 - 8x + 7$



Ex: The suspension cables between two towers of the Mackinac Bridge in Michigan form a parabola that can be modeled by the graph of $y = 0.000097x^2 - 0.37x + 549$ where x and y are measured in feet. What is the height of the cable at the lowest point?

Ex: The cables between two telephone poles can be modeled by the equation $y = 0.0024x^2 - 0.1x + 24$, where x and y are measured in feet. To the nearest foot, what is the height of the cable above the ground at its lowest point?

Ex: The cables between the two towers of the Tacoma Narrows bridge form a parabola that can be modeled by the equation $y = 0.00014x^2 - 0.4x + 507$ where x and y are measured in feet. What is the height of the cable above the water at its lowest point? Round your answer to the nearest foot.