Graphing Quadratic Functions

Vertex Form

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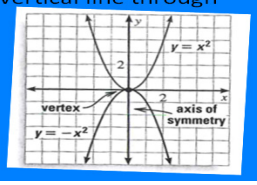
- A **quadratic function** has the form $y=ax^2 + bx + c$.
- The graph is U-shaped and is called a **parabola.**
- The lowest or highest point on the graph of a quadratic function is called the **vertex.**
- The **axis of symmetry** is a vertical line through the vertex.



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Intercept form

- A quadratic is in *intercept form* when it is factored
- The x-intercepts (or "zeros") are where the graph crosses the x-axis
- The axis of symmetry lies halfway between these points.
- To find the vertex find the average of the x intercepts. Then plug that number back in for x to solve for y.

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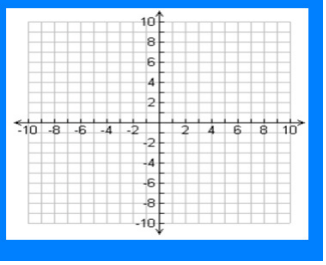
Graph the function y = (x + 1)(x + 5)



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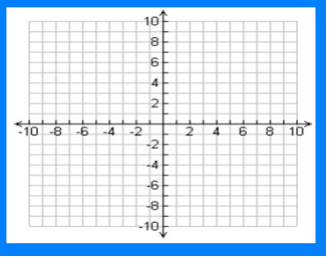
Graph the function f(x) = (x - 2)(x + 4)



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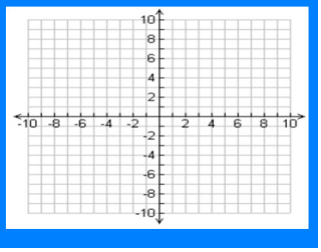
Graph the function y = (x – 4)(x – 7)



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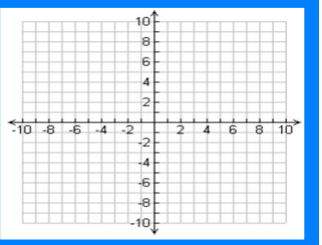
Graph the function $f(x) = x^2 + 4x + 3$



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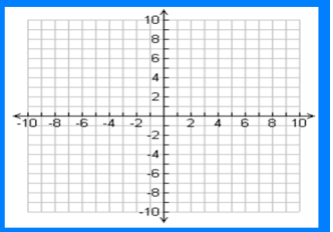
Graph the function $y = x^2 + 3x - 10$



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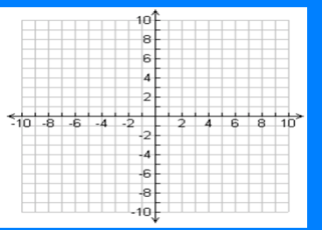
Graph the function $f(x) = 2x^2 - 8 = 0$



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