

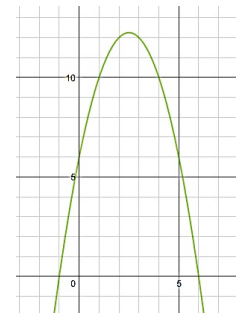
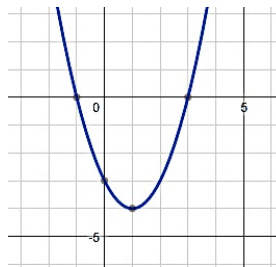
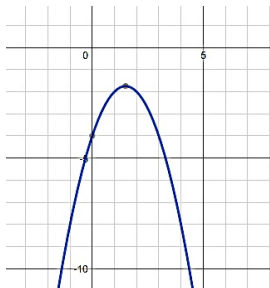
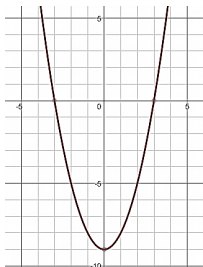
Topic: Graphing**Graphing Quadratics**

4	In addition a 3.0, student will demonstrate the ability to analyze another person's work to identify and correct errors.
3	<input type="checkbox"/> Transformations of graphs <ul style="list-style-type: none"> ▪ Given graph, write the function. ▪ Given a parent function and transformations, write a new function. <input type="checkbox"/> Graph a polynomial <ul style="list-style-type: none"> ▪ Use the zeros to construct a rough graph of the function defined by the polynomial. ▪ Show end behavior <input type="checkbox"/> Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation.
2	<input type="checkbox"/> Identify transformations of graphs <input type="checkbox"/> Identify domain graphically <input type="checkbox"/> Identify range graphically <input type="checkbox"/> Given the graph of a polynomial, identify the zeros. <input type="checkbox"/> Represent complex numbers on the complex plane in rectangular form (including real and imaginary numbers).
1	Insufficient progress towards foundational skills and knowledge.

Line of Symmetry

Watch (and take notes) the lecture called [Line of Symmetry](#).

1. Write the equation of the line of symmetry of each graph.



2. Find the line of symmetry of each equation.

a. $x^2 + 9x + 20 = 0$

b. $x^2 - 9 = 0$

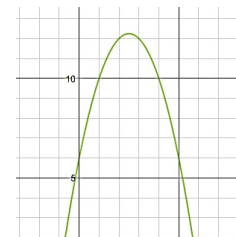
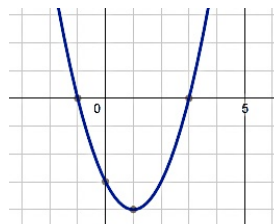
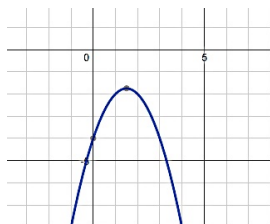
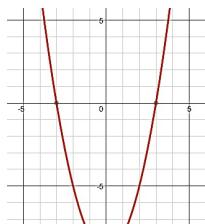
c. $4x^2 + 12x - 16 = 0$

d. $3x^2 + 5x - 2 = 0$

Finding the Vertex

Watch (and take notes) the lecture called [Vertex](#).

3. What is the vertex of each graph?



4. Find the vertex of each equation.

a. $x^2 + 9x + 20 = 0$

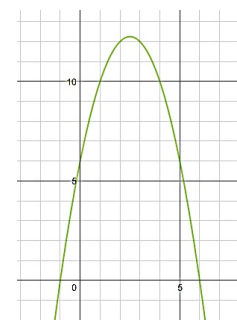
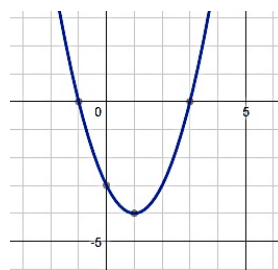
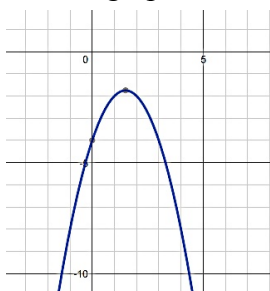
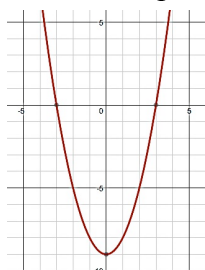
b. $x^2 - 9 = 0$

c. $4x^2 + 12x - 16 = 0$

d. $3x^2 + 5x - 2 = 0$

X-Intercepts (zeros)Watch (and take notes) the lecture called [X-Intercepts](#).

5. Identify the x-intercepts (zeros) of each graph.



6. Find the x-intercepts (zeros) of each equation.

a. $x^2 + 9x + 20 = 0$

b. $x^2 - 9 = 0$

c. $4x^2 + 12x - 16 = 0$

d. $3x^2 + 5x - 2 = 0$

End BehaviorWatch (and take notes) the lecture called [End Behavior](#)

7. Sketch a graph with the correct end behavior.

a. $x^2 + 9x + 20 = 0$

b. $-x^2 - 9 = 0$

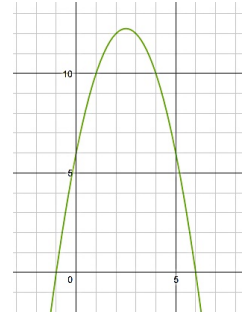
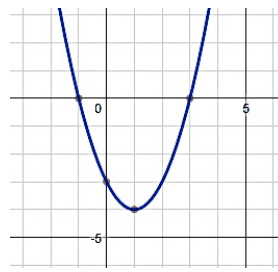
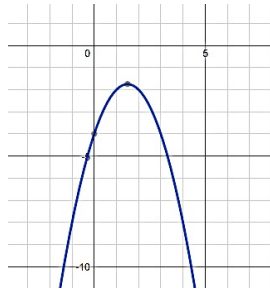
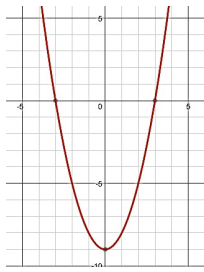
c. $4x^3 + 12x - 16 = 0$

d. $-3x^3 + 5x - 2 = 0$

Domain and Range

Watch (and take notes) the lecture called [Domain](#) and [Range](#).

8. What is the domain and range of each graph?

**Graphing Quadratics (putting it all together)**

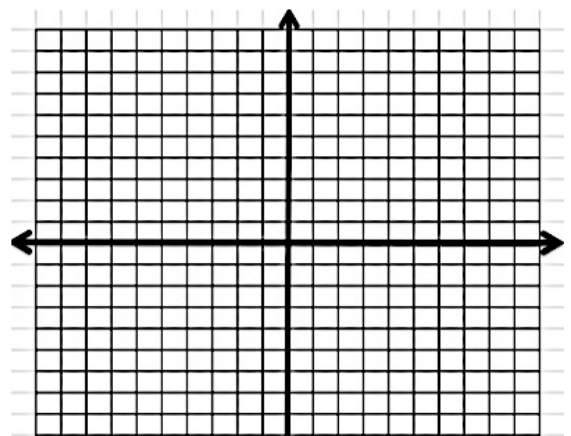
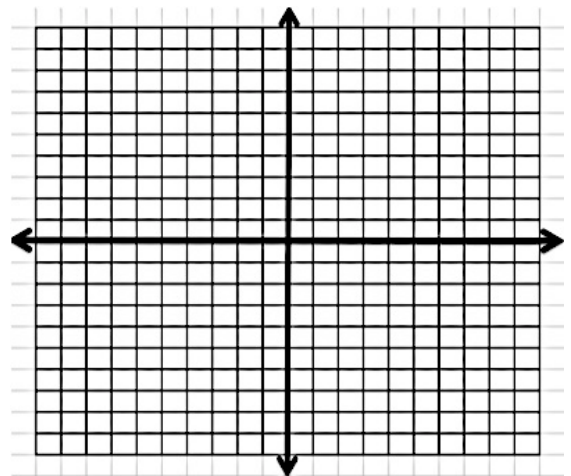
Watch (and take notes) the lecture called [Graphing Quadratics](#).

equations.

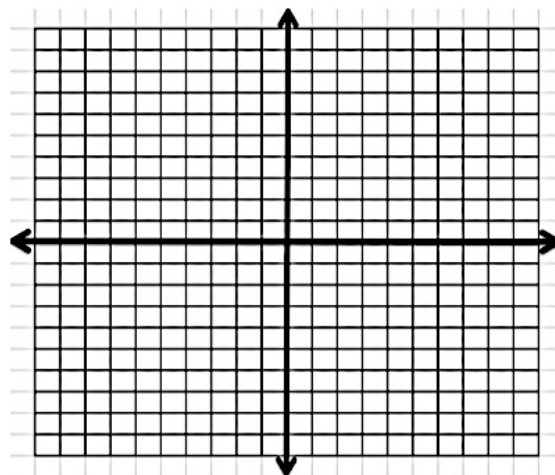
a. $y = x^2 + 6x + 8$

b. $y = -x^2 + 2x + 3$

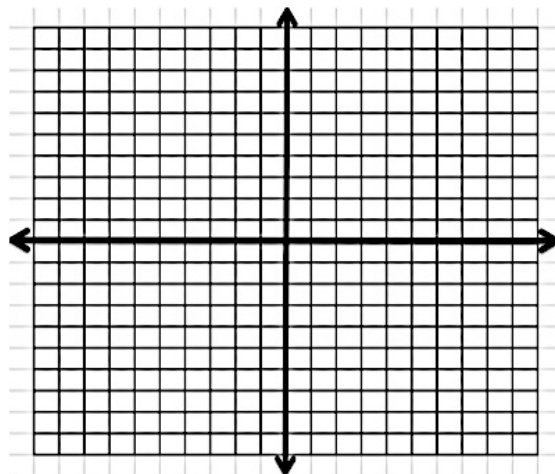
Graph the quadratic



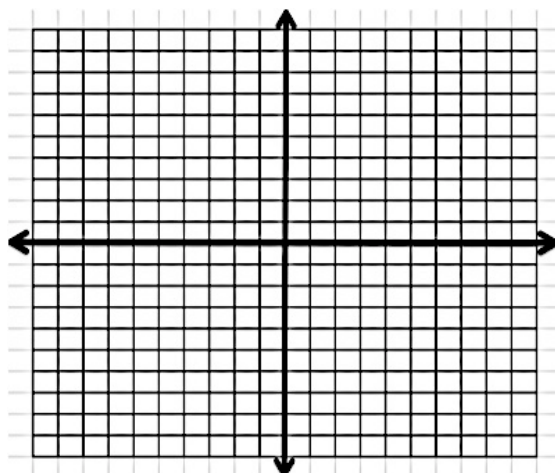
c. $y = x^2 - 4$



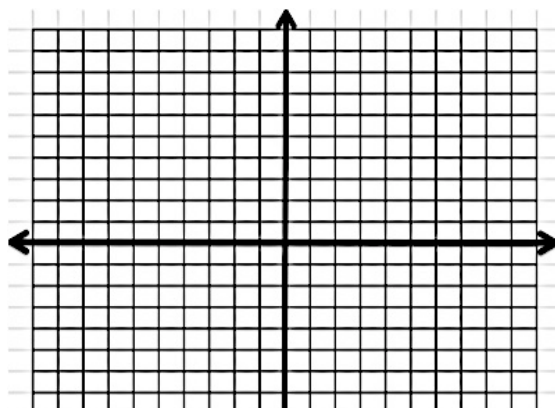
d. $y = -x^2 + 9$



e. $y = -2x^2 - 18x$



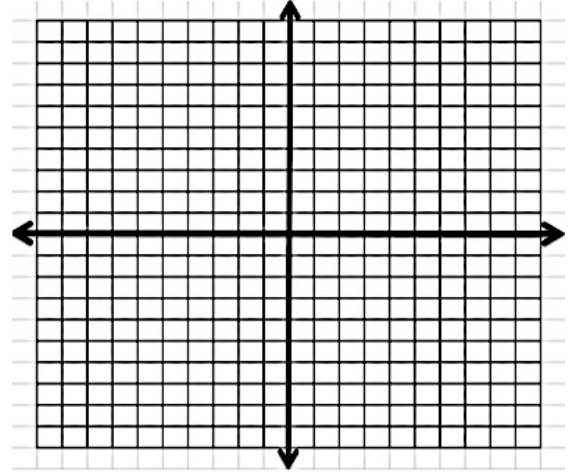
f. $y = 2x^2 + 4x - 6$



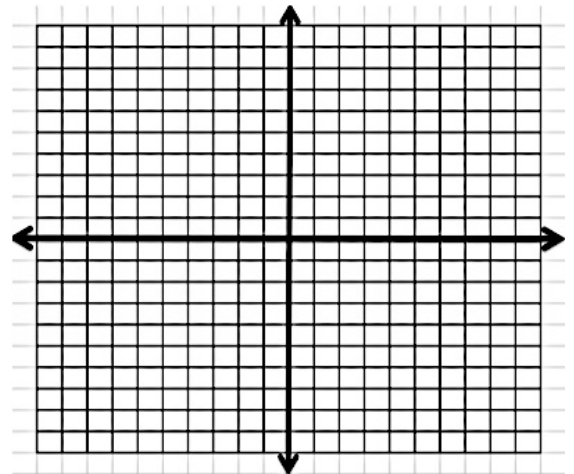
Thinking About End Behavior

10. Above, you learned about x-intercepts (zeros) and end behavior. The polynomials below are written in standard form and are factored for you. Sketch what the graph would look like of the polynomials.

a. $x^3 + 4x^2 - x - 4$
 $(x + 1)(x - 1)(x + 4)$



b. $-x^3 + 7x - 6$
 $-(x - 2)(x + 3)(x - 1)$



c. $x^4 + 5x^3 + 5x^2 - 5x - 6$
 $(x + 3)(x - 1)(x + 2)(x + 1)$

