Name: _____ Per: _____ Date: _____
Serafino ▪ Algebra 2E

3AQ Quadratic Functions in Vertex Form

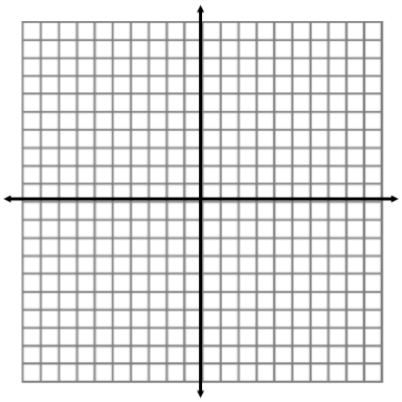
Review – Aka: WILL ONLY BE HELPFUL IF YOU ALREADY DID ALL THE OTHER HOMEWORK!

Provide the following information about the given functions, then graph:

1. **$f(x) = 2(x - 1)^2 - 6$** Range:

   y–int: # of x–int:

   f(–5) = f(5) =

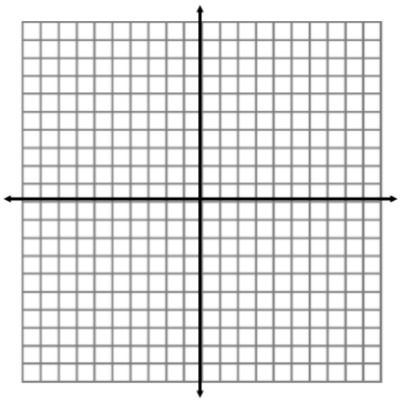


x–int:

2. **$f(x) = \frac{1}{2}(x + 4)^2$** Range:

   y–int: # of x–int:

   f(–5) = f(5) =



x–int:

3. **$f(x) = 2x^2$** Range:

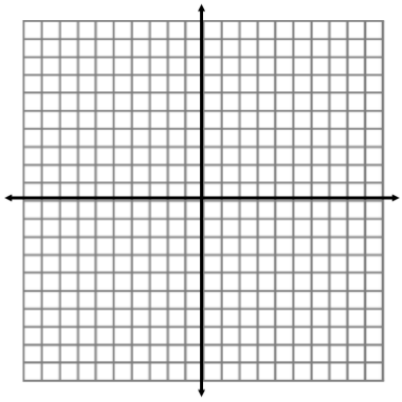
   y–int: # of x–int:

   f(–3/4) = f(3/4) =

4. **$f(x) = -(2x + 5)^2 + 4$** Range:

   y–int: # of x–int:

   f(–6) = f(6) =

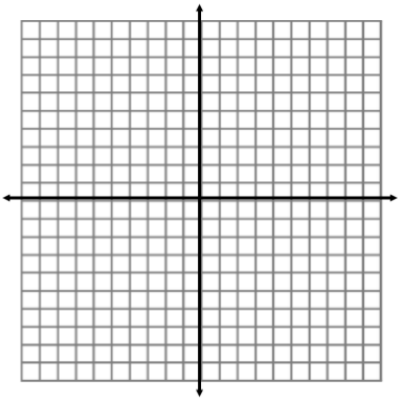


x–int:

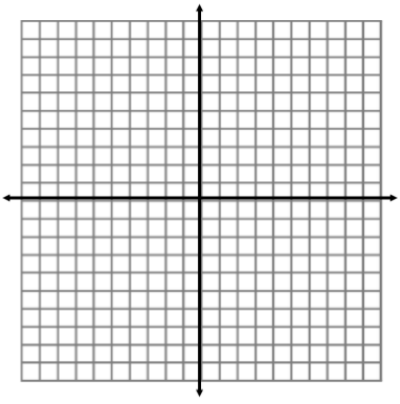
5. **$f(x) = \frac{3}{4}x^2 + 2$** Range:

   y–int: # of x–int:

   f(–8) = f(8) =

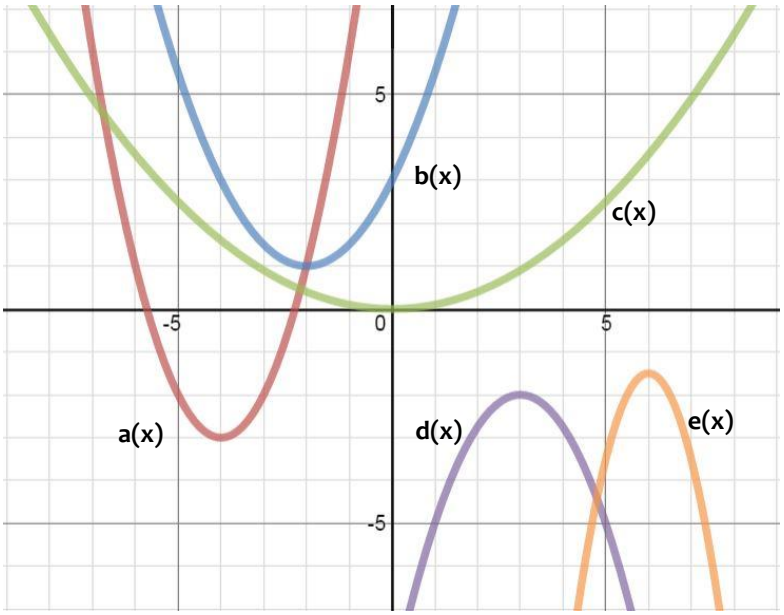


x–int:



x–int:

6. Write the equation of the function from the graph:



a(x) =

b(x) =

c(x) =

d(x) =

e(x) =

7. Transformations: Complete the table

Original function	Transformations in Function Notation	List of transformations	Transformed function
$f(x) = 3x^2 + 5$			$g(x) = -6(x + 2)^2 - 3$
$c(x) = -6(x - 3)^2 - 1$	$d(x) = \frac{4}{3}c(x) + 10$		
$t(x) = \frac{1}{2}(x + 5)^2 - 10$		–Vertically stretch by a factor of 2/5 – Shift left 7, down 2	w(x) =
$k(x) = \frac{4}{3}(x-8)^2 - 2$		– Reflect over y–axis –Shift left 1, down 3 units	m(x) =

8. For each of the following quadratics: Solve and classify the x–intercepts using square roots.
If the root(s) is/are irrational, simplify and rationalize, then approximate the decimal to two places.

1. $f(x) = x^2 - 9$
2. $f(x) = 4x^2 + 108$
3. $f(x) = 3(x - 3)^2 - 42$
4. $f(x) = -\frac{1}{2}(x - 1)^2 + 2$
5. $f(x) = 3(x + 2)^2$
6. $f(x) = \frac{1}{2}(3x + 5)^2 + 24$