Name_____ Pd_____ Date_____ **2Q Test Study Guide**
Turn this study guide in on the day of your test to receive +5 EXTRA CREDIT on the test.

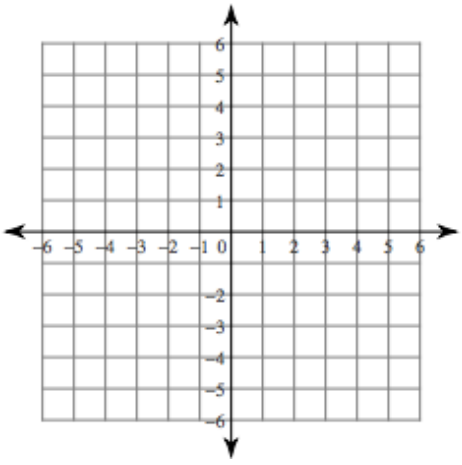
Complete the table. (2Q1, 2Q2, 2Q3) - Don't forget ROX (reflect over x-axis aka face down).

Function	Transformations	Vertex (h, k)	Max or Min	Equation of AoS
$y = -x^2$				
$y = x^2 + 1$				
$y = (x - 4)^2$				
$y = (x + 4)^2 + 5$				
$y = 3(x + 2)^2 - 1$				
$y = -2(x + 3)^2 - 4$				

Graph the quadratic function in vertex form. (2Q3)
$f(x) = -2(x + 1)^2 + 3$

x		y	$f(x) = y$	(x, y)

Explain how you made your graph.



Order from widest to narrowest and tell whether the vertex is a maximum or a minimum. (2Q1)

$f(x) = -\frac{2}{3}x^2$ $f(x) = 4x^2$ $f(x) = -x^2$ $f(x) = 2x^2$

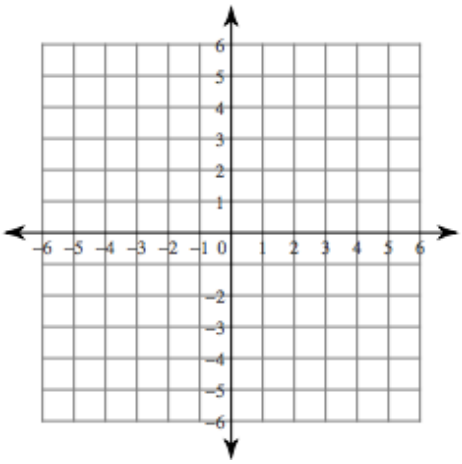
Find the vertex, (h, k) using $h = \frac{-b}{2a}$. (2Q5)

1) $y = -2x^2 + 8x - 5$ 2) $f(x) = x^2 - 4x + 1$ 3) $y = -x^2 - 10x + 6$

Graph the quadratic function in standard form (2Q5).

$f(x) = 3x^2 - 6x + 1$

x		y	$f(x) = y$	(x, y)



Explain how you made your graph.

Find the zeroes of the function. (2Q7)

4) $(x + 2)(3x - 1) = 0$ 5) $(3x - 6)(x - 5) = 0$ 6) $(4x + 3)(2x - 7) = 0$

Find the zeroes of the function. (2Q7)

7) $f(x) = 12x^2 + 13x - 4$

8) $y = 2x^2 - 13x - 7$

9) $y = 10x^2 - 11x - 6$

10) $f(x) = 2x^2 - 3x - 14$

Answer the real-world application questions using your graphing calculator or $h = \frac{-b}{2a}$.

11) The number of bacteria in refrigerated food is given by $N(t) = 20t^2 - 20t + 120$ when the temperature, t, is between $-2°C$ and $14°C$.

a. At what temperature will the number of bacteria be minimal?

b. What is the minimum number of bacteria?

12) The height, h, in feet, of an object thrown starting from 190 feet above the ground is given by $h = -16t^2 + 64t + 190$, where t is time in seconds.

a. At what time does the object reach its highest point?

b. What is its maximum height?

c. At what time does the object hit the ground? (Find the positive x-intercept in your calculator.)

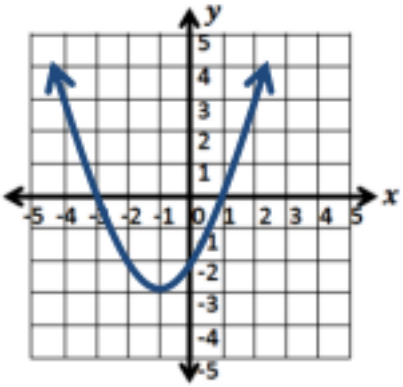
Identify the features of the parabola. (2Q4)

Vertex (min/max):

Equation of AoS:

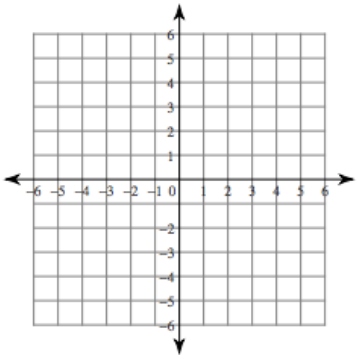
x-intercept(s):

y-intercept:

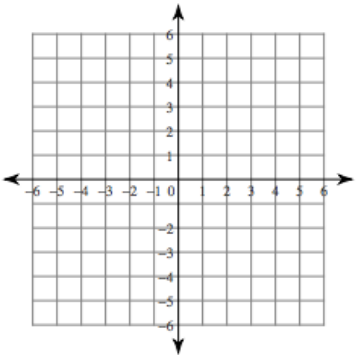


Sketch a parabola for each situation. (2Q4)

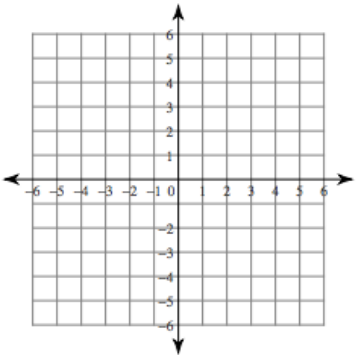
13) no roots; vertex is min

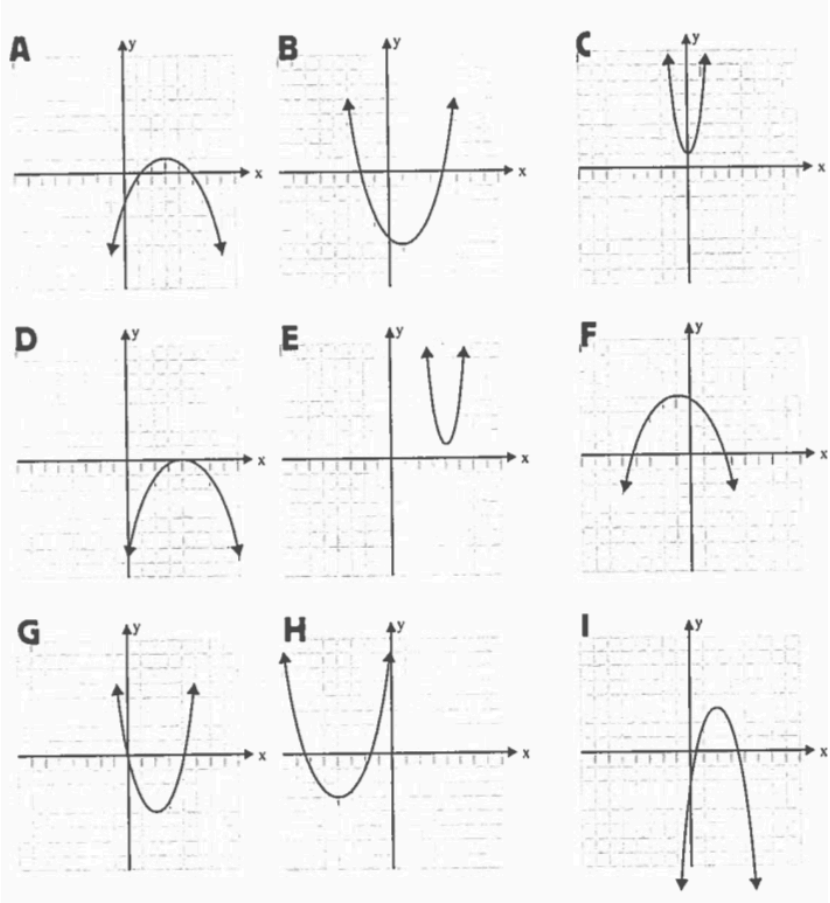


14) two roots; vertex is max



15) double root; vertex is max





Write the letters of all graphs that match the description (at least 2 each). (2Q1, 2Q2, 2Q3, 2Q4)

- vertical stretch (narrower)
- normal width
- wider
- no x-intercepts
- shifted right
- shifted left
- reflected over x-axis (ROX)
- shifted down
- shifted up
- vertex is a minimum