BUILDING QUADRATIC FUNCTIONS

1. Given the coordinates of the vertex and the value of "c".
   a) graph opens up, vertex (3, 2), c = 4 $4(4)(y-2)=(x-3)^2$
   b) graph opens down, vertex (-5, -3), c = 1/4 $-4(1/4)(y+3)=(x+5)^2$
   c) graph opens to the right, vertex (-2, 7), c = 3/4 $4(3/4)(x+2)=(y-7)^2$
   d) graph opens to the left, vertex (4, -3), c = 6 $-4(6)(x-4)=(y+3)^2$

2. Given the coordinates of the vertex and of the focal point.
   a) vertex (3, 5), focal point (5, 5) $c=2,$ opens right, $4(2)(x-3)=(y-5)^2$
   b) vertex (-3, 7), focal point (-11, 7) $c=8,$ opens left, $-4(8)(x+3)=(y-7)^2$
   c) vertex (4, -6), focal point (4, -11) $c=5,$ opens down, $-4(5)(y+6)=(x-4)^2$
   d) vertex (-3, -4), focal point (-3, 0) $c=4,$ opens up, $4(4)(y+4)=(x+3)^2$

3. Given the coordinates of the vertex and the equation of the directrix
   a) vertex (2, 3), x = 6 $c=3,$ opens left, $-4(3)(x-2)=(y-3)^2$
   b) vertex (-4, 5), x = -5 $c=1,$ opens right, $4(1)(x+4)=(y-5)^2$
   c) vertex (6, 8), y = 12 $c=4,$ opens down, $-4(4)(y-8)=(x-6)^2$
   d) vertex (-5, -2), y = -6 $c=4,$ opens up, $4(4)(y+2)=(x+5)^2$

4. Given the coordinates of the focal point and the equation of the directrix.
   a) focal point (4, 6), x = 8 $c=2,$ opens left, vertex (6, 6), $-4(3)(x+6)=(y+6)^2$
   b) focal point (-3, 6), x = -5 $c=1,$ opens right, vertex (-4, 6), $4(1)(x+4)=(y-6)^2$
   c) focal point (6, -9), y = -5 $c=2,$ opens down, vertex (6, -7), $-4(2)(y+7)=(x-6)^2$
   d) focal point (-2, -4), y = -8 $c=2,$ opens up, vertex (-2, -6), $4(2)(y+6)=(x+2)^2$

5. Given the endpoints of the latus rectum
   a) (-3, 7) and (-3, 9), opening left $c=2,$ vertex (-3, -1), $-4(2)(x+1)=(y+3)^2$
   b) (-6, 2) and (14, 2), opening down $c=5,$ vertex (4, 2), $-4(5)(y-2)=(x-4)^2$

6. Given a point on the curve and the vertex
   a) point (6, 7) and vertex (14, -5), opening left
   $-4(c)(6-14)=(7-(-5))^2,\ c=144/32=9/2,\ -4(9/2)(x-14)=(y+5)^2$
   b) point (-6, -5) and vertex (6, 4), opening down
   $-4(c)(-5-4)=(-6-6)^2,\ c=4,\ -4(4)(y-4)=(x-6)^2$