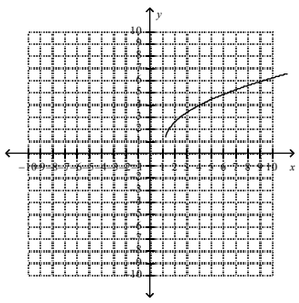
Quadratic Test Practice

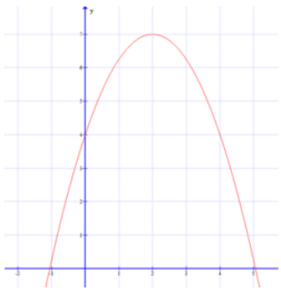
1. State whether each of the following is linear, quadratic or neither:

$y = -\frac{1}{2}x + 3$

x	y
0	-62
1	-41
2	-26
3	-17
4	-14



2. For the equation $y = 4(x+2)^2 - 3$ state the following:
   The vertex:
   Does the quadratic have a Maximum or a minimum?
   What is the maximum or minimum value?



3. A fountain forms a stream of water that can be modelled by the following quadratic relation.
   a. What is the maximum height reached by the stream of water?
   b. How far from the fountain did the water reach its maximum height?
   c. When did the water land in the pool?
   d. State the equation that describes the path of the water.

4. The height, *h* metres, of a football *t* seconds after being kicked is modeled by the quadratic relation. $h = -2t(t-10)$
   a. From what height was the ball kicked?
   b. How long is the ball in the air?

5. Given the equation $y = -2x^2 - 10x + 7$, state the y intercept

6. A projectile is shot vertically into the air. Its height *h*, in metres, after *t* seconds is modelled by the relation $h = -5(t-3)^2 + 67$
   a. What is the maximum height of the projectile?
   b. When does the projectile reach its maximum height?
   c. From what height was the projectile shot?

7. Expand the following .
   a. $(x+5)(x-3)$ b. $(x-2)^2$

8. Factor the following.
   a. $x^2 + 7x + 10$ b. $3x^2 + 9x - 12$ c. $x^2 - 36$ d. $6x^2 - 12x$

9. Graph each of the following. Express both equations in standard form.
   a. $y = -2(x-3)^2 + 4$ b. $y = (x+5)(x-1)$

10. The path of a soccer ball can be represented by the relation $h = -0.05x^2 + 1.5x$, where *x* is the horizontal distance the ball travels and *h* is the height in metres.
    a. From what height is the ball kicked?
    b. When does the ball hit the ground?
    c. What is the maximum height that the ball reaches?
    d. When does the ball reach its maximum height?
    e. How high is the ball 5 meters from where it is kicked?
    f. When is the ball at this height again?