TASK

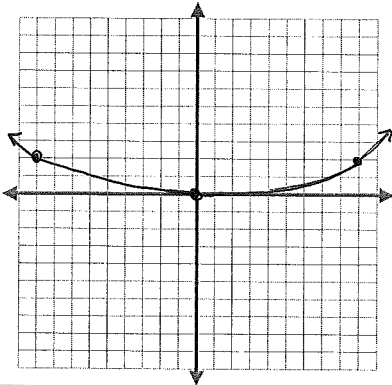*Algebra 1*: Unit 7 .1-7.3 Review Homework Handout: Graphing Quadratic Functions          Name:

| Write the rule of a Quadratic Function (Parabola). | Write an equation for the function represented by the graph of a parabola that is the translation of $f(x) = x^2$ |
|---|---|
| 1.  | 2. The graph is translated 0 units to the right and 7 units down. The graph is also half as vertically stretched compared to the parent function. |

Find all the parts and graph the quadratic function.
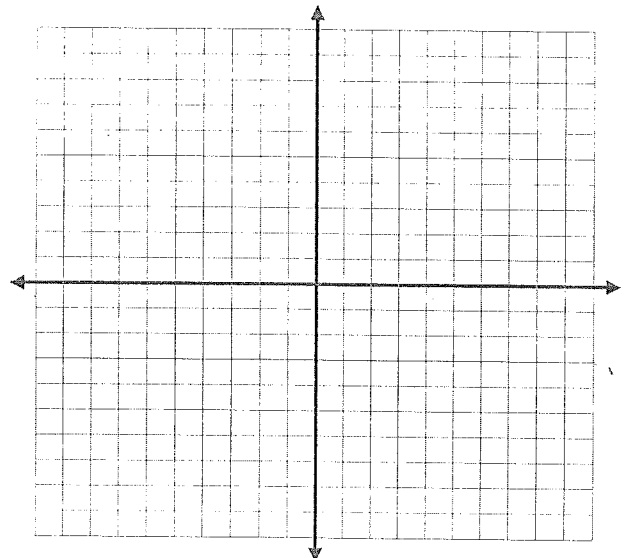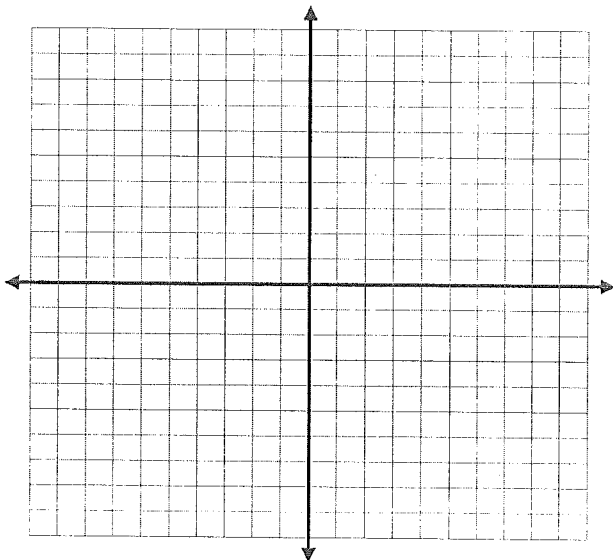
3. Graph: $g(x) = 2x^2 - 8x + 6$

| x | $g(x)$ |
|---|---|
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Direction of opening:
Vertex:
Maximum/Minimum:
Axis of Symmetry:
y-intercept:
x-intercept(s):
Domain:
Range:

4. Graph: $f(x) = -3(x - 1)^2 + 3$

| x | $f(x)$ |
|---|---|
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Direction of opening:
Vertex:
Maximum/Minimum:
Axis of Symmetry:
y-intercept:
x-intercept(s):
Domain:
Range:

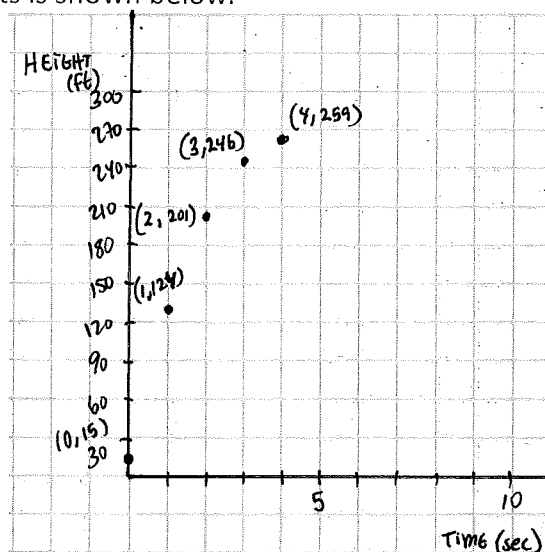5. A model rocket is launched from a platform into the air. You record its height at different times until it reaches its peak at 259 feet. Your graph of these points is shown below.

HEIGHT
(ft)
300
270          (4, 259)
240     (3, 246)
210  (2, 201)
180
150  (1, 124)
120
90
60
(0, 15)
30
                              5          10
                                   TIME (sec)

a. How long will the rocket be in the air?

b. You want to complete your graph by plotting the heights of the rocket as it descends. Give the points that you know the rocket will pass through on its way to the ground.

c. Which of the following equations models the flight of the ball where x is in the time in seconds and y is the height in feet? Explain how you eliminated the other three possibilities.
   i. $16x^2 + 15x + 125 = y$
   ii. $16x^2 + 125x + 15 = y$
   iii. $-16x^2 + 125x + 15 = y$
   iv. $-16x^2 + 15x + 125 = y$

6. The path of a baseball is modeled by the quadratic function $y = -16x^2 + 90x$, where y is in feet after x seconds. How long is the baseball in the air?