

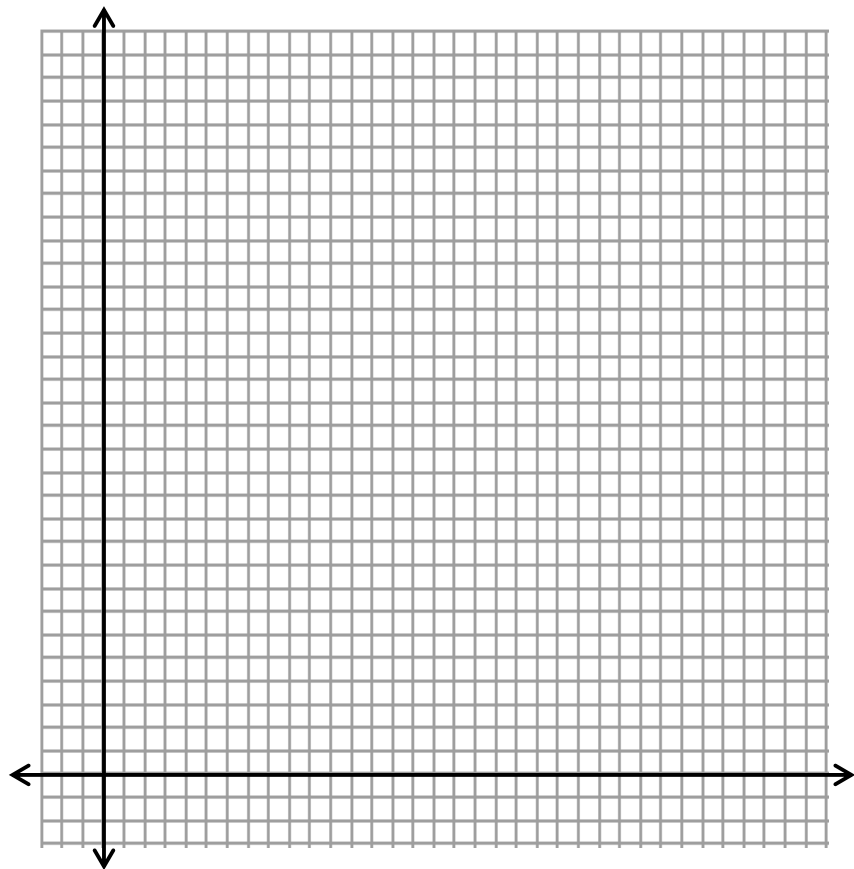
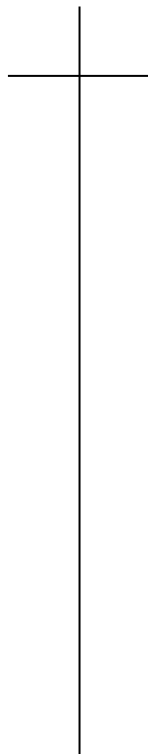
$$h(t) = -16t^2 + v_0t + h_0$$

Recall: v_0 = initial velocity h_0 = initial height $h(t)$ = height t = time**Directions:**

- Write an appropriate quadratic equation for each of the situations.
- Find the vertex.
- Use the vertex to help you make a table of values.
- Graph.
- Answer the question(s) asked.

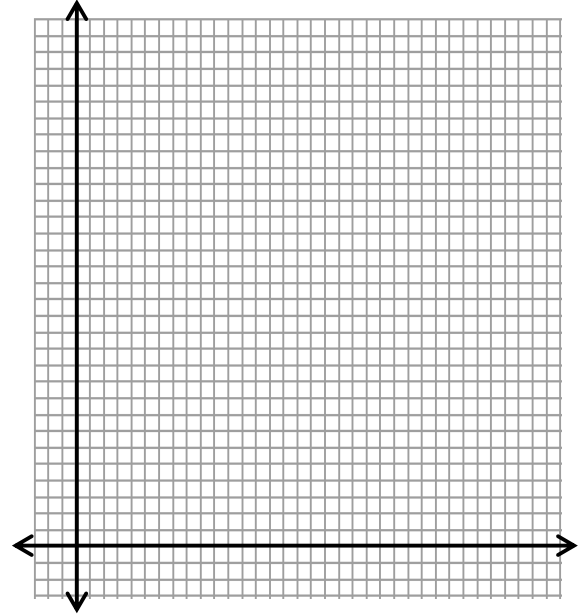
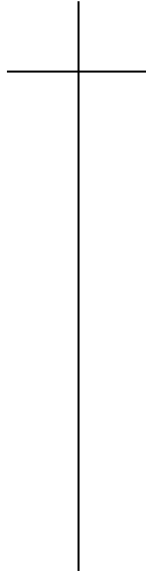
- Some fireworks are fired vertically into the air from the ground at an initial velocity of 80 feet per second.

Find the highest point reached by the firework just as it explodes.



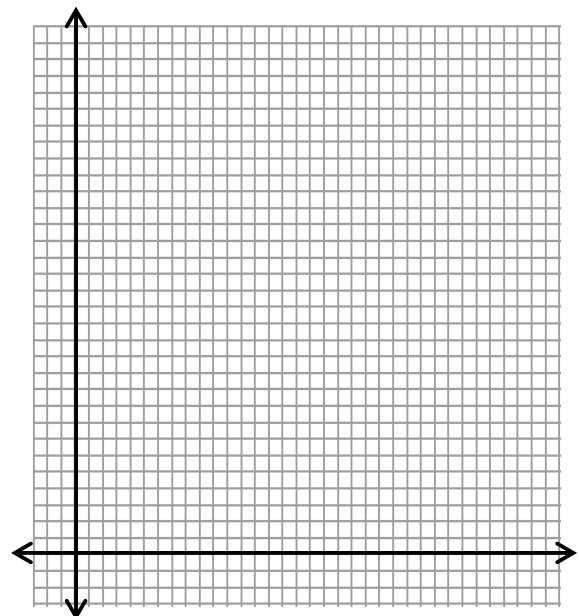
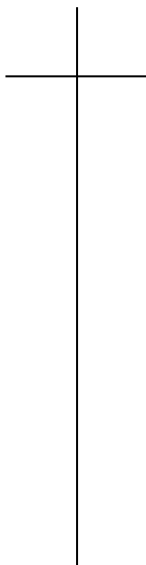
2. A cannon ball is launched directly upward at 64 feet per second from a platform 80 feet high.
- When will the cannon ball reach its maximum height?
 - What will that maximum height be?

Equation: _____



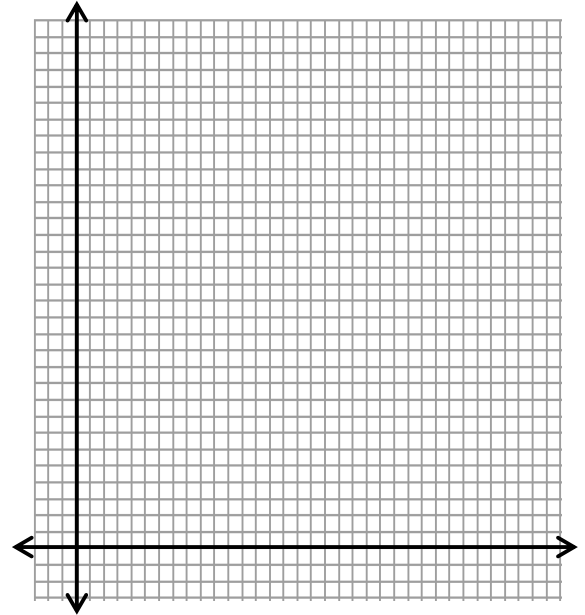
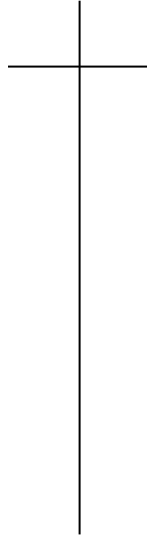
3. A ball is thrown vertically upward with an initial velocity of 48 feet per second. If the ball started from a height of 8 feet off the ground, determine the time it will take for the ball to hit the ground.

Equation: _____



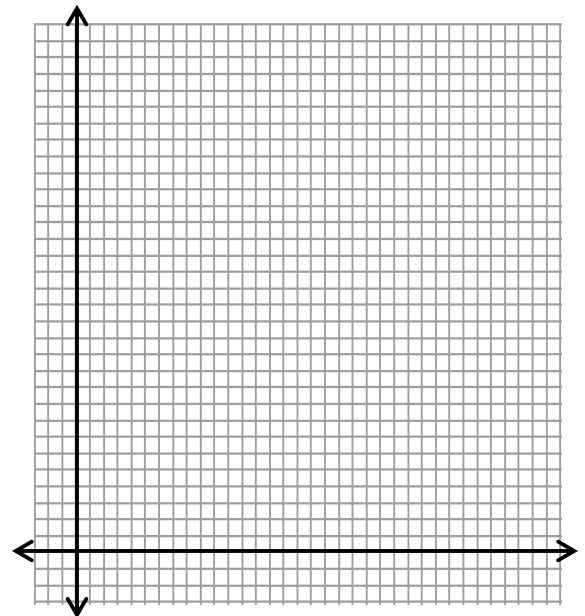
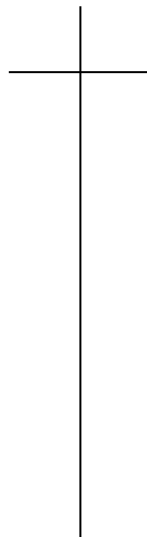
4. A calculator is launched at 19.6 feet per second from a 58.8 feet tall platform.
- What is the maximum height of the object?
 - How long did it take for the calculator to reach its maximum height?

Equation: _____



5. A ball is drop kicked with a velocity of 39.2 m/sec from 2 meters off the ground.
- What is the maximum height of the ball?
 - How long does it take for the ball to reach the maximum height?

Equation: _____



For questions 6-7.

- a. Circle if each sequence is arithmetic, geometric, quadratic, or none of these.
- b. Write a formula for the sequence if it is **arithmetic or geometric**.
- c. Find the next 3 terms of each sequence.

6. 70, 60, 52, 46 ...

7. 37, 24, 19, 13

Circle One: A G Q None

Circle One: A G Q None

Formula (if A or G):

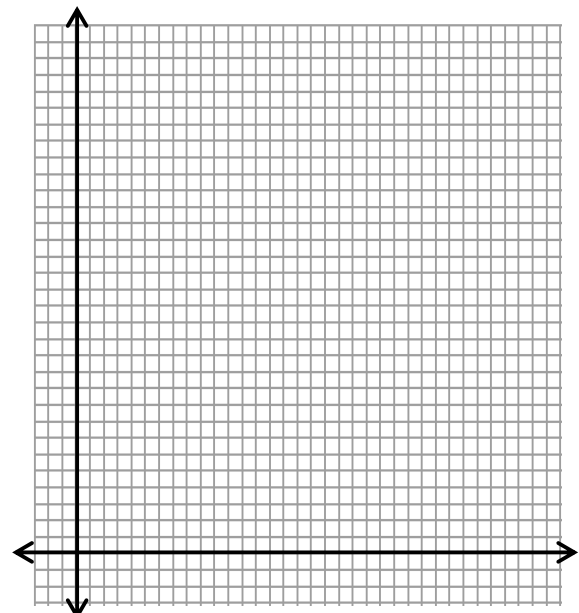
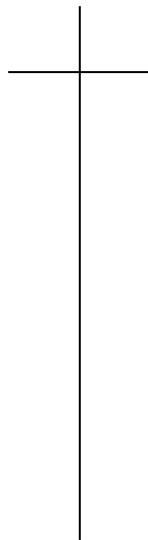
Formula (if A or G):

Next 3 terms: _____, _____, _____

Next 3 terms: _____, _____, _____

Find the vertex. Then graph the quadratic equation using at least 5 ordered pairs including the vertex.

8. $y = -6x^2 + 36x + 96$



9. $y = 2x^2 + 30x - 72$

