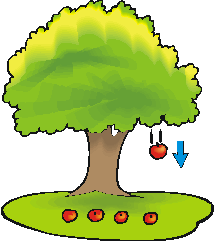
**Dropping Objects**

**When an object is dropped, the speed with which it falls continues to increase (due to gravity pulling it faster downward!). The formula**

**h = -16t2 + s**

**models the height of the object with respect to time. h = height, t = time in seconds and s = starting height**

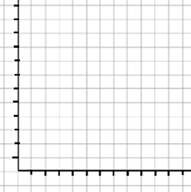
**Create a model for the height of an apple that drops off a tree when it started on a branch 20 feet above the ground.**

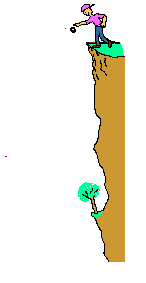
**Label:**

* **X axis (time)**
* **Y axis (height)**
* **Vertex (maximum)**

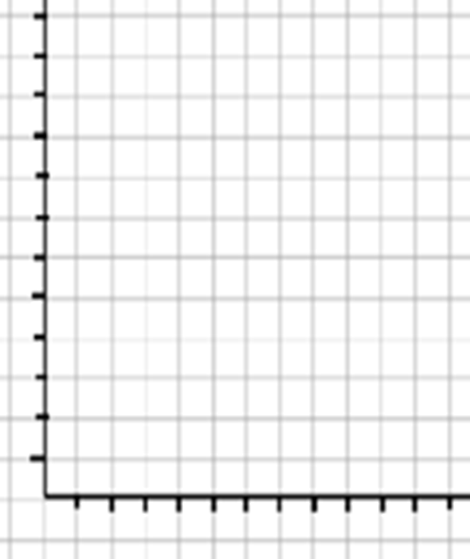
**Draw:**

* **Sketch of the graph**



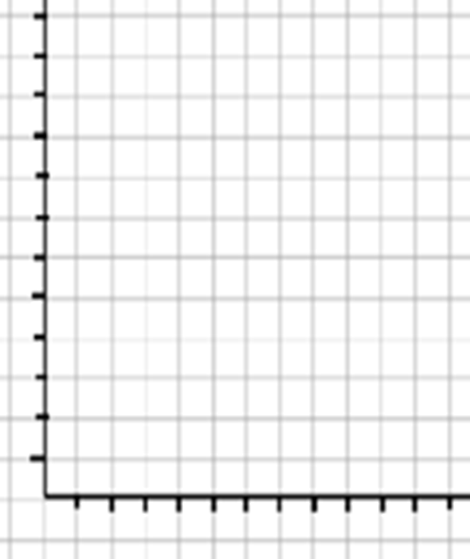
**Example 1**

**Phil drops a ball from the top of a cliff. It is 215 feet to the ground. How long does it take the ball to hit the ground below the cliff?**

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**Example 2**

**How long does it take a free-fall ride at an amusement park to drop 121 feet (and they stop 1 foot short of the ground)?**

****