Learning Journal Unit 2 - Math 1201

College Algebra (University of the People)

We all have seen the down of bridge area that form U shapes, or roller coasters or rainbows, etc in our life, And those if we want to get any details about height, distance, the time we can use maths and in maths by using the Quadratic functions.

The quadratic functions are quite handy when it comes to getting some height, distance, centre points, or time details for the objects that form U shapes. And this U shapes in graph is called a "parabola". The parabola can be open down and up, and when it opens down the highest point is the vertex that we can use as the maximum value and when it opens up the lowest point is the vertex which we can use as a minimum value.

Here is the general and standard form of a quadratic function that presents the function in the form mentioned by Abrahamson (2017):

General form: ***f(x) = ax^2 + bx + c***

Standard form: ***f(x) = a(x − h)^2 + k***

The good example of the line also known as the linear function is our own growth, our growth is like a function where the number of days is input and our body widths, heights are the outputs. The more days pass the more changes in our physics will appear and it won't be always same. I mean the age will return a unique growth in our body as output.

Here are the 2 forms that we can use to represent a linear function in function notation:

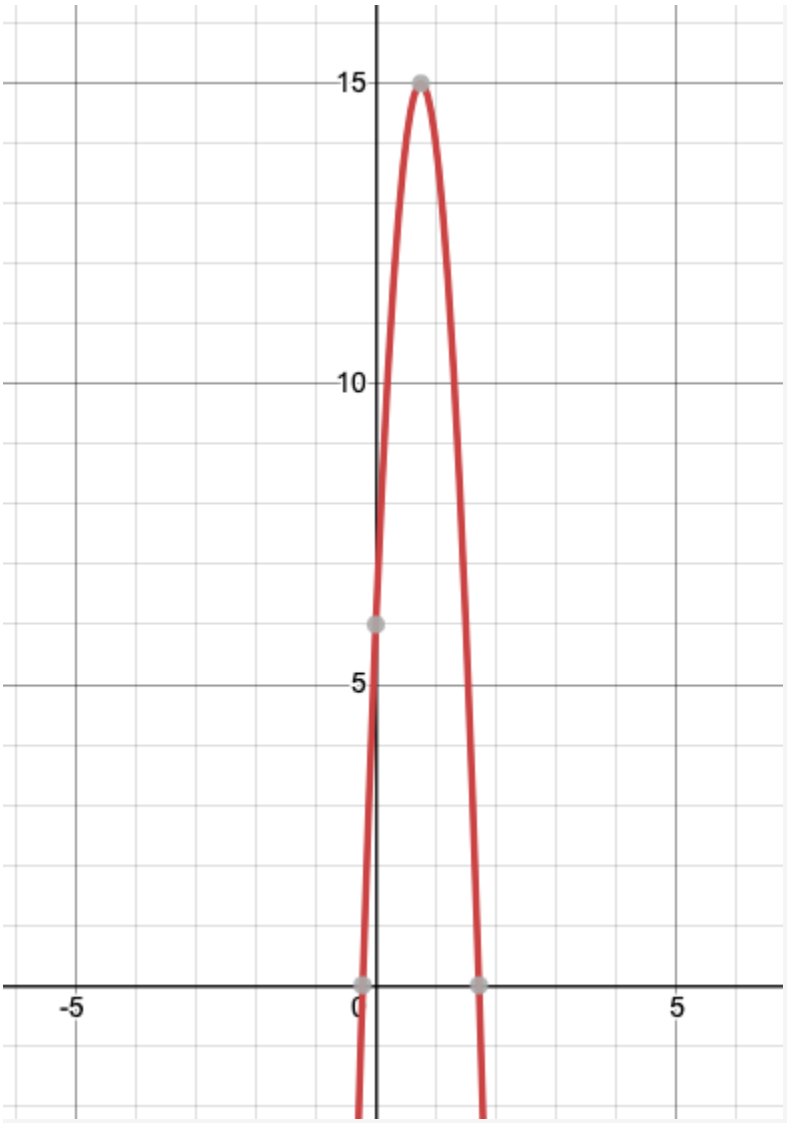
Equation form: **y = mx+b**

Function notation: **f(x) = mx+b**

A good example of a quadratic function that occurs in our day to day life is basketball or football. When we play we kick or throw the ball to a specific direction and then it goes up and slowly it falls down. And while going up and falling down it starts to form the parabola shapes and which is what quadratic function is.

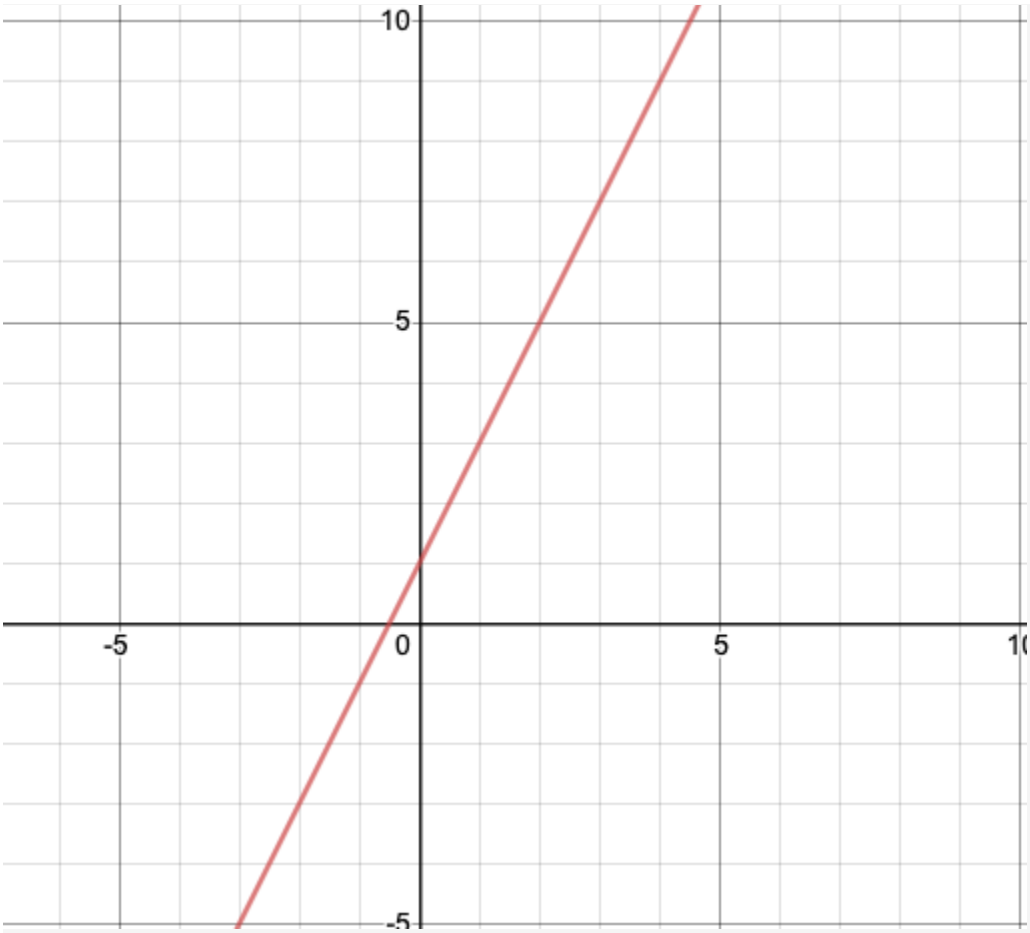
Now for the line function example, we can take running exercise, the number of miles we run the number of calories will burn.

An example of football quadratic function with graph h(t) = -16t^2+24t+6



As you can see the graph of the quadratic equation above, it's U shape and it's going down. And the vertex of this graph is the highest value which is 15. The domain is (-∞, ∞) and the range is (-∞, 15].

An example of linear function with eqation and graph y = 2x + 1



On the above linear function graph, the slope is 2 and the y-intercept value is 1.

Reference

Abramson, J. (2017). *Algebra and trigonometry*. OpenStax, TX: Rice University. Retrieved from https://openstax.org/details/books/algebra-and-trigonometry