MHF4U – Summative Task

Create a Desmos Roller Coaster meeting the following criteria…

* (Where t is the time in seconds)
* (The current tallest roller coaster is 459 feet!)
* Including polynomial functions of the form y=a(x-r)(x-s)(x-t)
* Including rational functions of the form
* Including trigonometric functions (where the x value is measured in radians)
* Including exponential functions of the form
* Including logarithmic functions of the form
* Where all functions connect smoothly

Calculate the instantaneous rate of change at 4 points on the roller coaster

* The steepest point on the graph
* A point on the graph where the roller coaster is increasing
* A point of the graph where the roller coaster is decreasing
* A point where there is a local max or minimum

Determine **at least** one point in time when the height of the roller coaster is 200 feet using algebra.

Determine all intervals where the roller coaster’s height is less than 100 feet.

(Note: This roller coaster would only be a level 2 – it does not include all the required functions and all functions do not connect together smoothly)

