Module 14

Algorithmic Complexity

Motivation:

Cost of a Problem:

Size of Problem:

Ex 1: 1+2+3+…+n= n(n+1)/2

Source: https://rithmschool.github.io/function-timer-demo/

```
function addUpToFirst(n) {
  var total = 0;
  for (var i = 0; i <= n; i++) {
    total += i;
  }
  return total;
}
```

```
function addUpToSecond(n) {
  return n * (n + 1) / 2;
}
```

Big O Notation:

Ranking Order (Source: Desmos)

<u>Ex 2</u>: Algorithmic A and B do the same job. Algorithmic A is $O(n^2)$ and Algorithmic B is $O(n^3)$. Which is better?

Ex 3: Determine the order notation of the following:

Source: https://rithmschool.github.io/function-timer-demo/

```
function printAllPairs(n) {
  for (var i = 0; i < n; i++) {
    for (var j = 0; j < n; j++) {
      console.log(i, j);
    }
  }
}
```