Terminology To Know

These are important terms and notations for this section.

Definition 1 (Exponent)**.** *The exponent of a term is the power that the term is being raised to. For example, the exponent of* $x^1 3$ *is* 13*.*

Definition 2 (Exponentiation)**.** *Exponentiation is the process of raising a term to a power. For example, if we have* $x = 13$ *and "square" both sides, we would say we "exponentiated both sides by two". This is primarily of use/interest in industry as it is a much more common phrase than saying "we raised both sides to the power of two."*

Definition 3 (Exponential Growth/Decay)**.** *Exponential Growth (or decay) is any growth (or decay respectively) whose rate depends upon the current population value of the growing (or decaying) substance. For example, a population of deer will have more babies if there are more deer to bread, so it's (unrestricted) growth would be an example of exponential growth. In contrast, if a student has 2 assignments assigned every week, due at the end of the semester, the workload growth is not an example of exponential growth, as it grows at the same rate regardless of how many assignments the student currently has.*

Definition 4 (Growth/Decay Multiplier)**.** *The growth/decay multiplier is the ratio of the size of the population after one growth/decay cycle to it's starting population. Thus if you have a population that goes from 100 to 200 in its first growth cycle, then it's growth multiplier is* $\dfrac{200}{100} = 2$*.*

Learning outcomes: