### Sequences and Series (Sections 11.1 – 11.5 in <u>Algebra 2</u>)

By the end of this Unit you should be able to:

### General

- Find the terms of a sequence given an explicit or recursive formula
- Evaluate the sum of a series expressed in sigma notation

### **Arithmetic**

- Recognize arithmetic sequences
- Find the indicated term, common difference, 1st term, or term number of an arithmetic sequence
- Write and use explicit and recursive formulas for arithmetic sequences
- Find arithmetic means between two numbers
- Find the sum of the first *n* terms of an arithmetic series
- Use the formula to evaluate an arithmetic series

### **Geometric**

- Recognize geometric sequences
  - Introductionto Simplifying Exponents
  - 1. Use properties of exponents to simplify expressions \* make sure to include how to simplify: and
  - 2. Evaluate and simplify expressions with negative exponents
  - 3. Evaluate expressions with fractional exponents
  - 4. Rewrite expressions with fractional exponents using radicals and vice versa

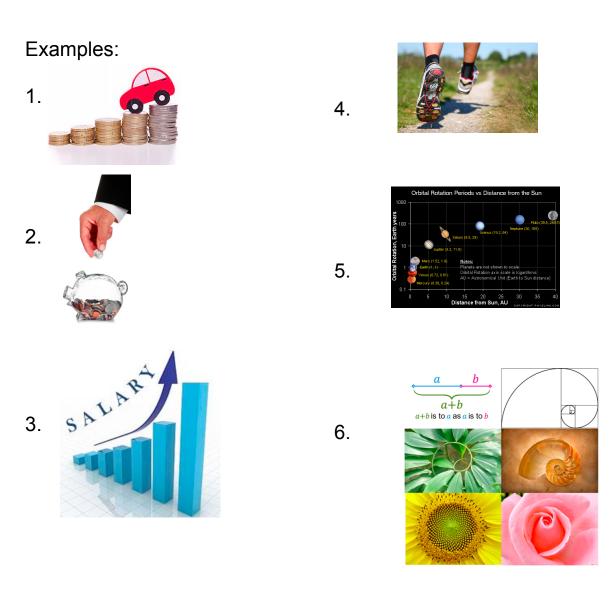
# • Find the indicated term, common ratio, and first term of a geometric sequence

of a geometric sequence

- Find geometric means between two numbers
- Find the sum of the first *n* terms of a geometric series
- Use the formula for a geometric series

## **Sequences and Series**

- model real world



#### Sequence -

Ex. 1, 3, 5, 7, 9 ...

The three dots following a sequence is called an **ellipsis**. This indicates that the sequence is \_\_\_\_\_\_, meaning it continues without an \_\_\_\_\_.

If there is a final term in the sequence, it has **an end**, meaning the sequence is

Terms (t) can be listed with subscripts. (Make note some texts use "a" or "u" to represent terms):

### **Explicit Formula -**

ex.  $t_n = 2n$ Find the 10th term:

### **Recursive Formula-**

ex.  $t_n = t_{n-1} - 2$ and  $t_1 = 1$ Find the first 3 terms:

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