Vocabulary: Geometric Sequences

📖 **Vocabulary**

- <u>Common ratio</u> – the ratio between any two consecutive terms in a geometric sequence.

- <u>Explicit formula</u> – a rule that allows direct calculation of any term in a sequence.
    - In general, the nth term in a geometric sequence is given by: $a_n = a_1 \cdot r^{n-1}$, where a_1 is the first term and r is the common ratio.
    - For example, the nth term of the sequence 5, 10, 20, 40, … is described by the explicit formula $a_n = 5 \cdot 2^{n-1}$.

- <u>Geometric mean</u> – the nth root of a set of n numbers.
    - The geometric mean of two numbers is the square root of their product.
        - For example, the geometric mean of 10 and 40 is $\sqrt{10 \cdot 40} = \sqrt{400} = 20$.

- <u>Geometric sequence</u> – a sequence in which the ratio of any two consecutive terms is constant.
    - For example, the sequence 5, 10, 20, 40, … is geometric because the ratio of any pair of consecutive terms is 2.
    - A geometric sequence is sometimes called a *geometric progression*.

- <u>Recursive formula</u> – a rule that allows you to find a term in a sequence, based upon the previous term.
    - In general, the recursive formula for the nth term of a geometric sequence is given by the recursive rule, $a_n = a_{n-1} \cdot r$, and the first term, a_1.
    - The geometric sequence 5, 10, 20, 40, … is defined recursively by the formula $a_1 = 5$ and $a_n = a_{n-1} \cdot 2$.

- <u>Sequence</u> – an ordered list of numbers.

- <u>Term</u> – each number or item in a sequence.