# Algebra 2 Sequences Name:

**Arithmetic Sequence – the difference between consecutive terms is a constant (*d*)**

***d* is called the common difference.**

Identifying an Arithmetic Sequence:

ex:

yes, the sequence is arithmetic

ex:

ex:

**Arithmetic Sequence Formulas**

Recursive Explicit

Find the first five terms of the arithmetic sequence:

ex:

Recursive formula

ex:

Explicit formula

Find the 20th term of each of the above sequences:

Example: Find the 75th term of the arithmetic sequence:

APPLICATION: *Suppose you have already saved $75 toward the purchase of a new phone. You plan to save $12 each week from your part-time job. What is the amount you will have saved after 26 weeks?*

Week Savings

1 $87

2 $99

3 $111

4 $123

**Arithmetic Mean – the arithmetic mean of any two numbers is the average of the two numbers.**

Arithmetic Mean =

We can use the arithmetic mean to find a missing term from an arithmetic sequence.

ex: Find the missing term of the arithmetic sequence

arithmetic mean =

ex: Find the arithmetic mean of the given terms.

ex: find the missing terms of the arithmetic sequence.

**Geometric Sequence – the ratio between consecutive terms is a constant (*r*)**

***r* is called the common ratio.**

Identifying an Geometric Sequence:

ex:

yes, the sequence is geometric

ex:

ex:

**Geometric Sequence Formulas**

Recursive Explicit

ex: Write a recursive and explicit formula for the sequence:

The sequence is geometric

Recursive formula Explicit Formula

Find the first 5 terms find the 10th term

ex: Write a recursive and explicit formula for the geometric sequence:

Recursive formula Explicit Formula

APPLICATION: *Suppose you want to enlarge a photo to 120% of its original size. The photo has a length of 10 cm. Find the length of the photo after 5 enlargements of 120%.*

Enlargement Length

1

2

3

**Geometric Mean – the geometric mean of any two numbers is positive square root of the product of the two numbers.**

Geometric Mean =

Find the geometric mean of 2 and 50.

Geometric mean =

We can use the geometric mean to find a missing term from a geometric sequence.

ex: Find the missing term of the geometric sequence

geometric mean =

ex: Find the missing terms of the geometric sequence: