Arithmetic Sequences

Name _____

Date _____ Period _____

An Arithmetic Sequence is a sequence of successive terms that differ by the same number, d, called the common difference.

$$a_1 = a, \quad a_n = a_{n-1} + d$$

$$a_1 = 1, \quad a_n = a_{n-1} + 4$$

1, 5, 9, 13, 17, 21

+4 +4 +4 +4 +4

common difference = +4

An Arithmetic Sequence is a sequence of successive terms that differ by the same number, d, called the common difference.

$$a_1 = a, \quad a_n = a_{n-1} + d$$

$$a_1 = 6, \quad a_n = a_{n-1} - 5$$

6, 1, -4, -9, -14, -19

-5 -5 -5 -5 -5

common difference = -5

Determine if the following sequence is an arithmetic sequence.

$$\{a_n\} = \{2n + 5\}$$

Find the first five terms of $\{a_n\}$ Find a_n Find a_{n+1}

Determine if the following sequence is an arithmetic sequence.

$$\{a_n\} = \{5 - 4n\}$$

Find the first five terms of $\{a_n\}$ Find a_n Find a_{n+1}

The general formula of an arithmetic sequence

$$a_n = a_1 + (n - 1)\cdot d$$

Find the general formula of the following arithmetic sequences

1, 5, 9, 13, 17, 21, ...

Find a_1 Find d

8, 5, 2, -1, -4, -7, ...

Find a_1 Find d

2, 14, 26, 38, 50, 62, ...

Find a_1 Find d