

Math 3206
Chapter 1 - Work Sheet 3
Types of Sequences
Chapter 1

Name: _____

1. Determine if each sequence below is arithmetic, quadratic, or neither. Explain your answer.

A) $\{-4, -8, -12, -16, \dots\}$ Type: _____

Reason: _____

B) $\{3, 6, 9, 12, \dots\}$ Type: _____

Reason: _____

C) $\{2, 7, 12, 17, \dots\}$ Type: _____

Reason: _____

D) $\{1, 3, 9, 27, 81, 343, \dots\}$ Type: _____

Reason: _____

E) $\{24, 19, 14, 9, \dots\}$ Type: _____

Reason: _____

2. Using $t_1 = 3$, write the first five terms of an arithmetic sequence which has a **common Difference (D1)** of:

A) 5 { _____ }

B) -4 { _____ }

3. Using $D1 = 4$, write the first five terms of an arithmetic sequence in which the **first term** is:

A) -17 { _____ }

B) 13 { _____ }

4. Write the first 5 terms of an arithmetic sequence that has the following properties:

A) $t_1 = 4$, $d = 3$ { _____ }

B) $t_2 = -5$, $d = -2$ { _____ }

C) $t_4 = 8$, $d = -6$ { _____ }

5 Use each function given to generate the first 5 terms of each sequence. Show the workings for at least 3 terms.

A) $t_n = 2n$ { _____ }

B) $t_n = -3n + 2$ { _____ }

C) $t_n = 0.2n + 5$ { _____ }

D) $t_n = -4n - 0.2$ { _____ }

6 Each of the following sequences are arithmetic. Use the formula $t_n = t_1 + d(n - 1)$ to find the equation for the n^{th} term of the sequence.

A) $\{1, 5, 9, 13, 17, \dots\}$ Type: _____

Equation: _____

B) $\{2, 4.5, 7, 9.5, 12, \dots\}$ Type: _____

Equation: _____

C) $\{13, 10, 7, 4, 1, -2, \dots\}$ Type: _____

Equation: _____

D) $\{-3, 1, 5, 9, 13, 17, \dots\}$

Type: _____

Equation: _____

7 Determine if each sequence is arithmetic, quadratic, or neither. If the sequence is arithmetic, find the common difference (first level differences = D_1) and use the formula $t_n = t_1 + d(n - 1)$ to find the equation for the n^{th} term of the sequence. Use this equation to find t_{50} , t_{305} , t_{900} .

A) $\{2, 4, 6, 8, 10, \dots\}$

Type: _____

B) $\{8, 5, 2, -1, -4, \dots\}$

Type: _____

C) $\{3, 6, 11, 18, 27, \dots\}$

Type: _____

D) $\{1, 8, 27, 64, 125, \dots\}$

Type: _____

E) $\{6, 3, 0, -3, -6, \dots\}$

Type: _____