

Chapter One: Sequences and Series

Sequences: an ordered list of elements.

→ follows a pattern

First element or term $\Rightarrow t_1$

Number of terms $\Rightarrow n$

The general term $\Rightarrow t_n$

$$\{t_1, t_2, t_3, \dots, t_n\}$$

Infinite Sequence \Rightarrow infinite number of terms

$$\text{ex) } \{5, 10, 15, 20, \dots\}$$

Finite Sequence \Rightarrow a given number of terms

$$\text{ex) } \{5, 10, 15, 20, \dots, 75\}$$

Arithmetic Sequences

↳ the difference between consecutive terms is constant.

(adding/subtracting the same number to get the next term)

This constant term is called the common difference.

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1a) 16, 32, 48, 64, 80, ...

D: 16, 16, 16, 16

Is Arithmetic.

b) 2, 4, 8, 16, 32, ...

D: 2, 4

Not Arithmetic

Prerequisite Skill

$$5x+3 - (x+2) = 2x-1 - (-3x+8)$$

$$5x+3-x-2 = 2x-1+3x-8$$

$$4x+1 = 5x-9$$

$$-x = -10$$

$$\boxed{x = 10}$$

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Solve for x:

$$a) 7x+3 - (x+6) = -2x+1 - (x+4)$$

$$b) -x-1 - (-x+2) = 4x-8 - (2x+3)$$