



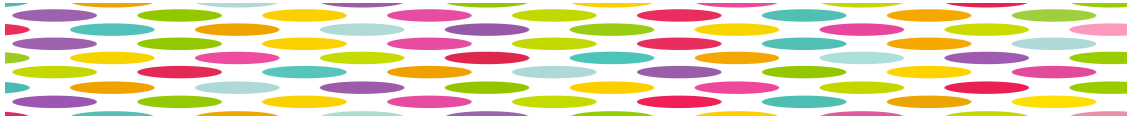
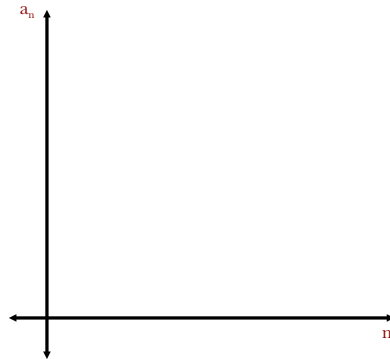
Chapter 4.2: Arithmetic Sequences

Arithmetic Sequences

Recursive Formula

Example) Consider the arithmetic sequence. What are the first three terms of the sequence? What is the 100th term of the sequence?

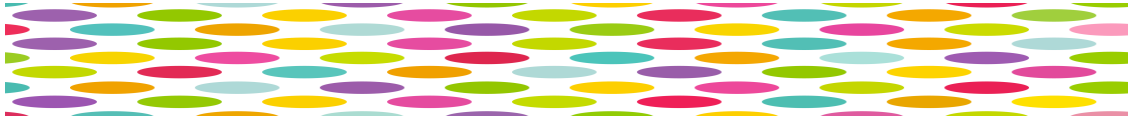
$$\begin{cases} a_1 = 3 \\ a_n = a_{n-1} + 5, n \geq 1 \end{cases}$$



Arithmetic Sequences

Explicit Formula

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



Example) Give the recursive and explicit notation for the arithmetic sequence.

10, 12, 14, 16, 18, ...

Recursive:

Explicit:



Example) Give the recursive and explicit notation for the arithmetic sequence.

46, 40, 34, 28, 22, ...

Recursive:

Explicit:



Example) Consider the arithmetic sequence defined by

$$\begin{cases} a_1 = 12 \\ a_n = a_{n-1} + 3, n > 1 \end{cases}$$

- a) Is the sequence defined explicitly or recursively?
- b) What does a_{n-1} mean?
- c) What is the first term and common difference?
- d) Write the first 4 terms of the sequence?
- e) What is the 312th term of the sequence?



Example) The information about the following sequence refers to an **arithmetic sequence**. Write both a recursive and explicit formula for each sequence.

$$p_3 = 106 \quad p_4 = 89 \quad p_5 = 72$$

Recursive:

Explicit:



Example) The information about the following sequence refers to an **arithmetic sequence**. Write both a recursive and explicit formula for each sequence.

$$a_{19} = 48 \quad \text{and} \quad d = 5$$

Recursive:

Explicit:

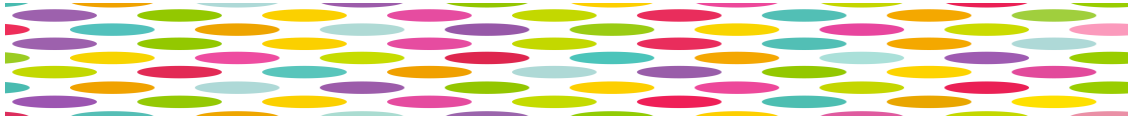


Example) The information about the following sequence refers to an **arithmetic sequence**. Write both a recursive and explicit formula for each sequence.

$$a_8 = 21 \quad \text{and} \quad a_{27} = 97$$

Recursive:

Explicit:



Classwork/Homework

Problem Set 4.2