Concept – Number patterns

Patterns of numbers occur in many different places in the natural world. Mathematicians, scientists, engineers and software developers are all interested in how these patterns are generated and how they can be used.

A sequence is _____

The numbers in a sequence are known as _____

$$2, 5, 11, 23, 47,...$$

How to

To find the rule for a sequence of numbers it can help to ask yourself these questions:

1. Is each term going up or down the the same amount? (_____)

2. Is each term a multiple or factor of the previous? (_____)

3. Is each term a multiple of the previous term(s)?

4. Is the next term generated using the previous two or three terms?

Eg:

Describe the rule for each of these sequences and find t_6.

2, 8, 14, 20,...   rule _____ $t_6 = $ _____

5, 15, 45, 135,... rule _____ $t_6 = $ _____

7, 4, 1, -2,...   rule _____ $t_6 = $ _____

1, 1, 2, 3, 5,...   rule _____ $t_6 = $ _____

Worked Example(s)
Choose another number pattern (or make up your own). Write the rule for the sequence and describe how to calculate a high term (eg: t_{10})