5-Minute Group Exploration

Part 1

Here are four different sequences.

4, 7, 10, 13, 16, 19, …

23, 30, 37, 44, 51, 58, …

48, 42, 36, 30, 24, …

11, 42, 73, 104, 135, …

Show the pattern in each sequence above.

What is the same about each pattern above?

Part 2

Here are four more sequences.

4, 12, 36, 108, 324, …

5, −10, 20, −40, 80, …

−96, −48, −24, −12, …

100, 25, 6.25, 1.5625, …

Show the pattern in each sequence above.

What is the same about each pattern above?

- The sequences in Part 1 are called **arithmetic sequences.**
- The sequences in Part 2 are called **geometric sequences.**

Consider each of the following sequences and decide if it is an arithmetic sequence, a geometric sequence, or neither.

a 17, 19, 21, 23, 25, …

b 18, 9, 4.5, 2.25, …

c 1, 4, 9, 16, 25, …

d 5, 10, 20, 40, 80, …

e $1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \ldots$

f 13, 39, 117, 351, …

g 64, 56, 48, 40, 32, …

h 1, 5.5, 10, 14.5, 19, …

i 3, 3, 3, 3, 3, …

j $\sqrt{1}, \sqrt{2}, \sqrt{3}, \sqrt{4}, \ldots$