

Elementary Math Models
Chapter 1 Work Sheet 1

For each number sequence below do the following:

1. Look for a pattern in the given number sequence.
2. Figure out the next three numbers according to your pattern.
3. If possible, work out the 100th number in the pattern (without finding all of the preceding numbers).
4. If appropriate for your pattern, draw a diagram similar to those in Chapter 1 of the book, showing how each term can be computed using the preceding term.
5. Write out a verbal description of your pattern. This description should permit someone to write out the numbers in the pattern without being given several terms as an example.
6. Subject your description to a random stranger test or a random class mate test.

Here are the patterns:

a. $3, 6, 9, 12, 15, \dots$

b. $1, 2, 4, 8, 16, \dots$

c. 1, 4, 9, 16, 25, 36, ...

d. 1, 3, 6, 10, 15, 21, ...

e. 5, 8, 11, 14, 17, ...

f. 1, 1, 2, 3, 5, 8, ...

g. 1, 10, 100, 1000, ...

h. 5, 55, 555, 5555, 55555, ...

i. 2, 6, 12, 20, 30, ...

j. $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \dots$

k. $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \dots$