HOW DIFFERENT SEQUENCES BEHAVE STUDENT RESOURCE

Use a calculator for this activity.

• For each of these sequences, calculate the first five terms and then the 10^{th} , 100^{th} , 500^{th} and 1000^{th} terms.

$$a_n = 3 + \frac{1}{10^n}$$

$$b_n = \frac{n^2}{n^3 + 1}$$

$$c_n = \frac{2n^2 + 1}{n^2 + n}$$

$$d_n = \frac{2n^3 + 1}{n^2 + n}$$

$$e_n = (-1)^n$$

$$f_n = (-2)^n$$

$$g_n = \frac{\sin n}{n}$$

INT means find the largest integer not bigger than the value in the bracket

$$h_n = INT(\frac{20}{n})$$

$$j_n = INT(5 + \frac{2}{n+1})$$

- Invent another sequence which you believe will behave in the same way as each of these sequences.
- Describe how each of these sequences behaves as **n** gets bigger.