WHEN WILL YOU GET A LIMIT? 2 STUDENT RESOURCE

Use a calculator for this activity.

The previous resource sheet explored sequences of the type $\frac{u_n + b}{u_n}$.

Now you are going to consider sequences of the type $u_{n+1} = \frac{au_n + b}{cu_n + d}$.

- Find out how sequences with the particular inductive definitions below behave. Try different values for u_1.

$$u_{n+1} = \frac{u_n + 4}{u_n - 2}$$

$$u_{n+1} = \frac{5u_n + 24}{u_n + 3}$$

$$u_{n+1} = \frac{u_n - 5}{2u_n + 3}$$

$$u_{n+1} = \frac{u_n + 4}{u_n - 1}$$

$$u_{n+1} = \frac{2u_n + 1}{u_n - 2}$$

- Can you predict how sequences of the type $u_{n+1} = \frac{au_n + b}{cu_n + d}$ will behave for different values of a, b, c and d?
  Use the techniques you developed in WHEN WILL YOU GET A LIMIT? 1