# To-Apply-an-impulse-signal-to-a-discrete-system

Given a discrete system for example this:

Diagram, schematic

Description automatically generated

We want to find out the output when a signal is applied to this system.

Steps in MATLAB:

1)create the impulse signal.

**impulse\_sig = [1 0 0 0 0 0 0 0 0 0 0 0 0 0 zeros(1,30)**

2) from the discrete system above, we can determine the *a* & *b* coefficients of the system.

3)use these coefficients to declare an array of *a* and *b* example:

**b =[0.47 3.94 -0.69 -0.9];**

**a =[1 0.133 0.473 0.074];**

4) last use the filter function to pass the impulse signal through the system and save to results to variable called *output\_Impulse\_signal* for future use.

**output\_Impulse\_signal = filter(b,a, impulse\_sig);**