

Problem 10 (signal flow graph)

The signal flow graph in figure 1 describes the input-output relationship of $v(k)$ and $y(k)$.

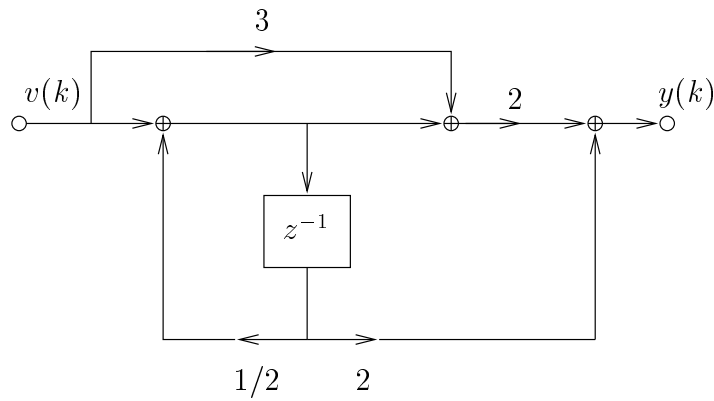


Figure 1: Signal flow graph of a filter

Determine the differential equation, the transfer function $H(z) = \frac{Y(z)}{V(z)}$ and the impulse response $h(k)$ of the system.

Problem 11 (signal flow graph)

Show that the systems in figure 2 are equivalent.

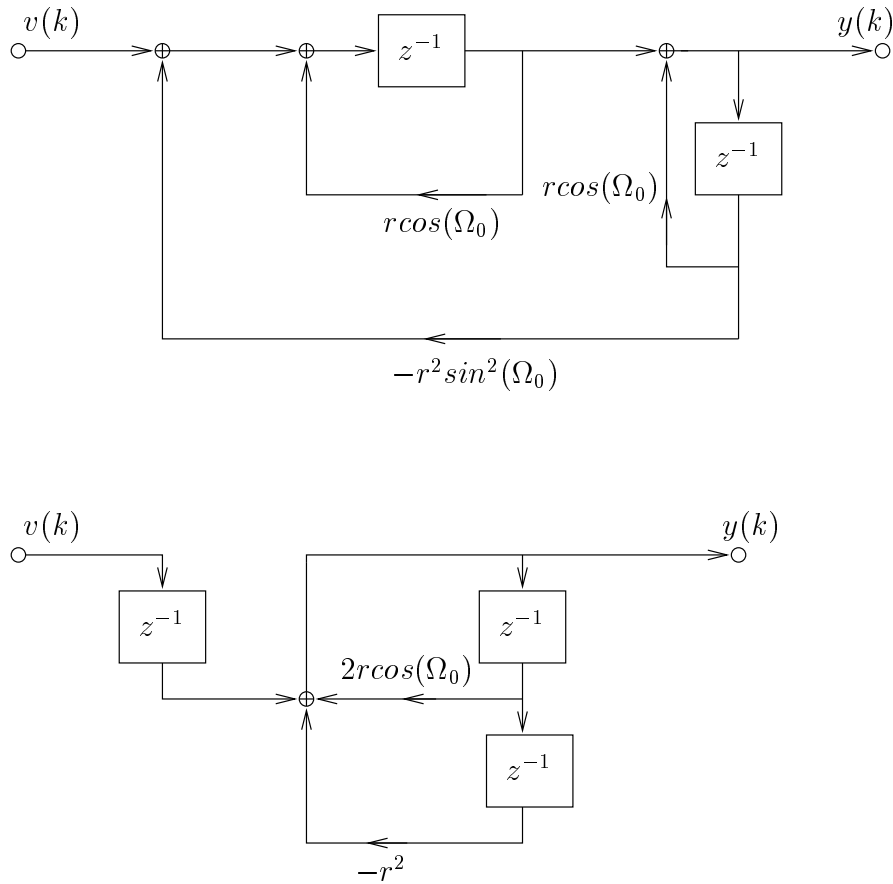


Figure 2: Signal flow graph of two systems