



<u>Problem 9</u> (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.

Digital Signal Processing and System Theory, Prof. Dr.-Ing. Gerhard Schmidt, www.dss-kiel.de Advanced Digital Signal Processing, Exercises WS 2022/2023





<u>Problem 10</u> (signal flow graph)

Show that the systems in figure 2 are equivalent.





Figure 2: Signal flow graph of two systems

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