6.19. Using partial fraction expansion, the system function can be rewritten as:

\[ H(z) = \frac{-8}{1-\frac{1}{3}z^{-1}} + \frac{1}{1 + \frac{3}{2}z^{-1}} + 9. \]

Now we can draw the flow graph that implements this system as a parallel combination of first-order transposed direct form II sections:

6.20. The transfer function can be rewritten as:

\[ H(z) = \frac{(1 + 2z^{-1} + \frac{3}{4}z^{-2})}{(1 + \frac{1}{4}z^{-2})(1 - \frac{3}{2}z^{-1} + z^{-2})} \]

which can be implemented as the following cascade of second-order transposed direct form II sections:

6.26. (a) We can rearrange \( H(z) \) this way:

\[ H(z) = \frac{(1 + z^{-1})^2}{1 - \frac{1}{3}z^{-1} + z^{-2}} \cdot \frac{(1 + z^{-1})^2}{1 + z^{-1} + \frac{3}{4}z^{-2}} \cdot \frac{(1 + z^{-1})^2}{1 - 2z^{-1} + \frac{5}{4}z^{-2}} \cdot \frac{1}{0.2} \]

(b) The solution is not unique; the order of the denominator 2nd-order sections may be rearranged.

\[
\begin{align*}
    u[n] &= x[n] + 2x[n-1] + x[n-2] + \frac{1}{2}u[n-1] - u[n-2] \\
    v[n] &= u[n] - u[n-1] - \frac{1}{2}v[n-2] \\
    y[n] &= w[n] + 2w[n-1] + w[n-2] + 2y[n-1] - \frac{7}{8}y[n-2].
\end{align*}
\]