$$6y[n-2] + y[n-1] - y[n] = 0 \qquad y[-1] = -1/6, \quad y[-2] = 1/36$$

$$6\left(z^{-2}Y(z) + z^{-1}y[-1] + y[-2]\right) + z^{-1}Y(z) + y[-1] - Y(z) = 0$$

$$\left(6z^{-2} + z^{-1} - 1\right)Y(z) = \underbrace{-6z^{-1}y[-1]}_{z^{-1}} - \underbrace{6y[-2]}_{-1/6 \;\; +1/6} - y[-1]$$

$$(3z^{-1} - 1)(2z^{-1} + 1)$$

$$Y(z) = \frac{z^{-1}}{(3z^{-1} - 1)(2z^{-1} + 1)}$$

$$Y(z) = \frac{-z^{-1}}{(1 - 3z^{-1})(1 + 2z^{-1})}$$

$$= \frac{A}{(1 - 3z^{-1})} + \frac{B}{(1 + 2z^{-1})}$$

$$A = \left.\frac{-z^{-1}}{(1 + 2z^{-1})}\right|_{z^{-1} = 1/3} = \frac{-1/3}{1 + 2/3} = -\frac{1}{5}$$

$$B = \left.\frac{-z^{-1}}{1 - 3z^{-1}}\right|_{z^{-1} = -1/2} = \frac{1/2}{1 + 3/2} = 1/5$$

$$Y(z) = -1/5 \; \frac{1}{1 - 3z^{-1}} + 1/5 \; \frac{1}{1 + 2z^{-1}}$$

$$\boxed{y[n] = 1/5 \left((-2)^n - (3)^n \right) u[n]}$$

$$y[n] = 6y[n-2] + y[n-1]$$

$n = 0 \qquad y[0] = \underbrace{6y[-2]}_{0} + y[-1]$ or

$n = 1 \qquad y[1] = \underbrace{6y[-1]}_{-1} + y[0]$ or