SSY040 A 070414

1/ a) $\omega_0 = \frac{\pi}{2}$, $T = \frac{2\pi}{\omega_0} = 4\,s$

b) $c_0 = 4\pi$ $\quad c_{-1} = \frac{3}{2} e^{-j\pi/4}$ $\quad c_1 = c_{-1}^* = \frac{3}{2} e^{j\frac{\pi}{4}}$

övriga $c_k = 0$

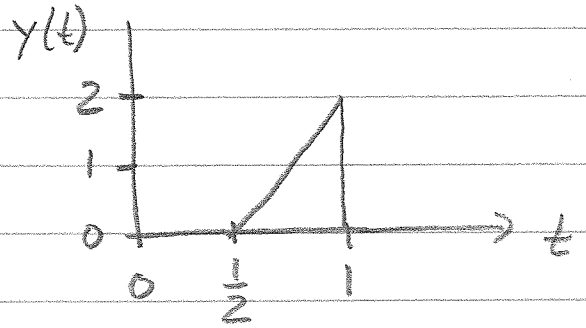
2/ $b = a$: $y[n] = b^n (n+1) = a^n (n+1)$

$b \neq a$: $y[n] = \frac{b^{n+1} - a^{n+1}}{b - a}$

$n = 0, 1, 2, \ldots$

3/ $y_0(t) \approx 8{,}94 \cos(500t - 26{,}6°)$ V

4/ a)



b) (Parseval) $\int_{-\infty}^{\infty} |X(j\omega)|^2 d\omega = 2\pi \int_{-\infty}^{\infty} |x(t)|^2 dt = \ldots = \frac{2\pi}{3}$

5/ $y(t) = \cos(\omega_c t) + \cos(0{,}6\,\omega_c t)$