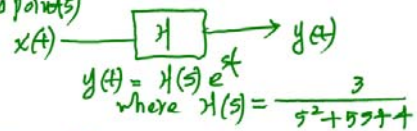


What would Midterm Be Like?

1. True/False Questions (20 points)
- Fourier transform can be done only for periodic signals _____
 - $e^{3t} [u(t) - u(t-2)]$ is periodic _____
 - If $y(t) = h(t) * x(t)$, $Y(s) = H(s)X(s)$ when $x(t) = e^{st}$ _____
 - For $x(t) = y(t)$, $y(t) = \begin{cases} t & t \geq 0 \\ 0 & t < 0 \end{cases}$ there is no even function $X_e(s)$ _____

2. (20 points)



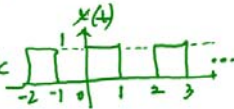
Find $y(t)$ for $x(t) = \delta(t-5)$

3. (20 points)



$$x(t) = \sum_{k=-\infty}^{\infty} c_k e^{jk\omega_0 t}$$

a) When $x(t)$ is periodic find ω_0



Find c_{1x}

b) For $H(j\omega) = \frac{1}{1+j\omega}$

Find c_{1y}

4. (20 points) $h(t) = [e^{-2t} - e^{-3t}] u(t)$

Find $y(t) = h(t) * x(t)$ for $x(t) = u(t+1)$
* denotes convolution integral

5. (20 points) For the circuit below express the relationship between $x(t)$ and $y(t)$ in time domain (i.e. by an ordinary differential equation) for $x(t) = u(t)$



Express $H(j\omega)$