1) \[ X(t) = \sum_{l=0}^{+\infty} \frac{e^{-l \pi t}}{l!} + \sum_{l=0}^{+\infty} \frac{e^{-l \pi t}}{l!} = \sum_{l=0}^{+\infty} \frac{e^{-l \pi t}}{l!} \]

\[ x(\pi t) = 0.1 \]

\[ E_X = \sum_{l=0}^{+\infty} \frac{e^{-l \pi t}}{l!} \]

\[ \frac{2 \pi t}{1 - 0.01} \]

2) \[ H(t) = \frac{1}{\pi t} \]

\[ y(t) = \frac{1}{2} \int_{0}^{\infty} \cos \left( 2 \pi ft \right) + H(t) \]

\[ \int_{0}^{\infty} \frac{\pi t}{1} \]

\[ \frac{2}{16} \]

3) \[ \hat{X}(T) = \frac{1}{2 \pi t} \]

\[ \hat{X}(T) = \frac{1}{2 \pi t} \]

\[ \frac{\pi t}{16} \]

4) \[ x(t) = e^{-\frac{t}{\pi t_0}} \]

\[ y(t) = e^{-\frac{t}{\pi t_0}} \]

\[ z(t) = x(t) y(t) = e^{-\frac{t}{\pi t_0}} \]

\[ \frac{1}{2} \cdot e^{-\frac{t}{\pi t_0}} \]

5) \[ \frac{\pi t}{16} \]

\[ \frac{1}{2} \cdot e^{-\frac{t}{\pi t_0}} \]

\[ \frac{6}{T} \]

\[ \frac{1}{2} \cdot e^{-\frac{t}{\pi t_0}} \]

\[ \frac{6}{T} \]

\[ \frac{6}{T} \]

\[ \frac{1}{2} \cdot e^{-\frac{t}{\pi t_0}} \]