Tutorat 2

Problème au tableau 1 :

$x(t) = 10 \cdot \sin(200t)$ $\qquad X(j\omega) = \int_{\tau=-\infty}^{\tau=\infty} x(t) e^{-j\omega t} dt$

$X(j\omega) = ?$

$$x(t) = 10 \frac{e^{j200t} - e^{-j200t}}{2j}$$

$$X(j\omega) = \frac{5}{j} \int_0^{\infty} (e^{j200t} - e^{-j200t}) e^{-j\omega t} dt$$

$$= \frac{5}{j} \int_0^{\infty} e^{j200t - j\omega t} - e^{-j200t - j\omega t} dt$$

$$= \frac{5}{j} \left[\frac{e^{j200t - j\omega t}}{j200 - j\omega} - \frac{e^{-j200t - j\omega t}}{-j200 - j\omega} \right]_0^{\infty}$$

$e^{\infty} = \infty$

$e^{-\infty} = 0$