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Tenemos

$$d(x_1, x_2) = \bar{P}_{x_1 - x_2} = \lim_{T \to \infty} \frac{1}{T} \int_T |x_1(t) - x_2(t)|^2 \, dt$$

$$\frac{1}{T} \int_T |x_1(t) - x_2(t)|^2 \, dt = \frac{1}{T} \left[\int_T |x_1(t)|^2 dt - 2 \int_T x_1(t) x_2(t) \, dt + \int_T |x_2(t)|^2 dt \right]$$

$$\boxed{\frac{1}{T} \int_T |x_1(t) - x_2(t)|^2 \, dt = \bar{P}_{x_1} - \frac{2}{T} \int_T x_1(t) x_2(t) \, dt + \bar{P}_{x_2}}$$

Ahora hayar $\bar{P}_{x_1}$

$$\bar{P}_{x_1} = \frac{1}{T} \int_T |x_1(t)|^2 \, dt$$

$$|x_1(t)|^2 \qquad |x_1(t)|^2 = |A e^{j w_0 t}|^2 = |A|^2 |e^{j w_0 t}|^2 = |A|^2 e^{j w_0 t} \cdot e^{-j w_0 t} = |A|^2$$

$$\frac{1}{T} \int_T |x_1(t)|^2 dt = \frac{1}{T} \int_T |A|^2 \, dt$$

$$|A|^2 \cdot \frac{1}{T} \int_T dt \qquad |A|^2 \cdot \frac{1}{T} \cdot T = |A|^2$$

$$\boxed{\bar{P}_{x_1} = A^2}$$

Para $\bar{P}_{x_2}$

$$\bar{P}_{x_2} = \frac{1}{T} \int_T |x_2(t)|^2 \, dt \qquad |x_2(t)|^2$$

$$x_2(t) = B e^{j5 w_0 t} \qquad |x_2(t)|^2$$

$$|x_2(t)|^2 = |B e^{j5 w_0 t}|^2 = |B|^2 |e^{j5 w_0 t}|^2 = |B|^2 e^{j5 w_0 t} \cdot e^{-j5 w_0 t} = |B|^2$$

$$\frac{1}{T} \int_T |x_2(t)|^2 dt = \frac{1}{T} \int_T |B|^2 dt \qquad |B|^2$$

$$|B|^2 \cdot \frac{1}{T} \int_T dt \qquad |B|^2 \cdot \frac{1}{T} \cdot T = |B|^2$$

$$\boxed{\bar{P}_{x_2} = B^2}$$

multiplicamos $(x_1(t))$ y $(x_2(t))$:

$$x_1(t)X_2(t) = (Ae^{jw_0t})(Be^{j5w_0t}) = ABe^{j(w_0+5w_0)t} = ABe^{j(6w_0)t}$$

$$-\frac{2}{T}\int_T x_1(t)X_2(t)\,dt = -\frac{2}{T}\int_T ABe^{j(w_0+5w_0)t}\,dt$$

$$-\frac{2}{T}\int_T ABe^{j(6w_0)t}\,dt$$

$$-\frac{2}{T}\int_T ABe^{j(6w_0)t}\,dt = -\frac{2}{T}\cdot AB\cdot\frac{T}{6}$$

$$= -\frac{2}{6}AB = \boxed{-\frac{1}{3}AB}$$

Al reemplazar

$$d(x_1,x_2) = \bar{P}_{x_1-x_2} = \lim_{T\to\infty}\frac{1}{T}\int_T |x_1(t)-x_2(t)|^2\,dt = \lim_{T\to\infty}\bar{P}_{x_1} - \frac{2}{T}\ldots$$

$$\int_T x_1(t)x_2(t)\,dt + \bar{P}_{x_2} = \lim_{T\to\infty} A^2 - \frac{1}{3}AB + B^2$$

$$\boxed{d(x_1,x_2) = A^2 - \frac{1}{3}AB + B^2}$$