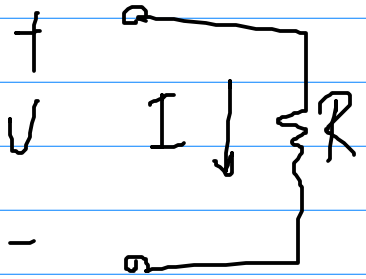
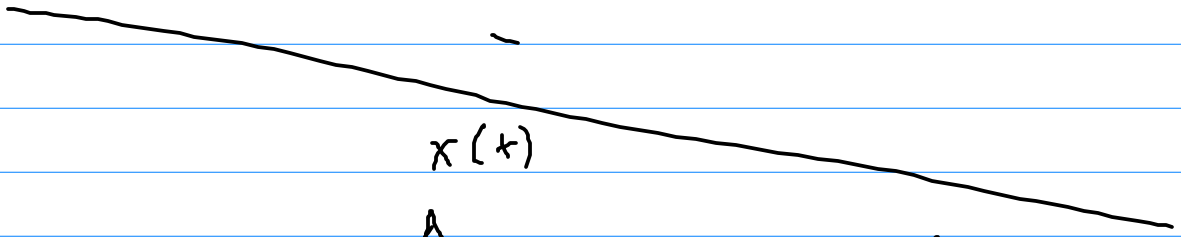


$$P = VI = \frac{V^2}{R} = I^2 R$$

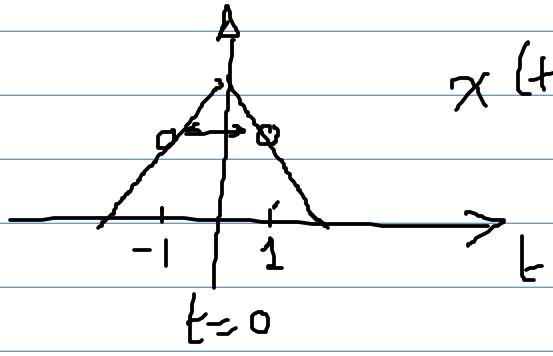
$$P(t) = x^2(t)$$

$$E = \int_{-\infty}^{\infty} x^2(t)\,dt$$

(Sig)^2



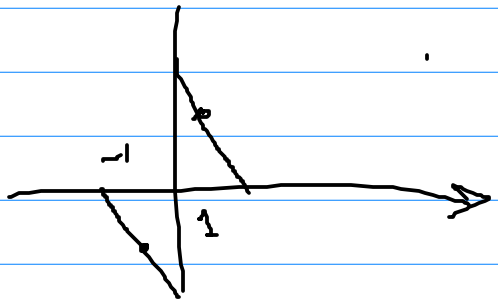
Cos



$x(t) = x(-t)$

$x(t) = -x(-t)$

Sin



$x(t) = \cos(2\pi t)$

$x(-t) = \cos(2\pi(-t)) = \cos(2\pi t)$

$= x(t)$

$\Rightarrow$ even

$x(t) = \sin(\pi t^2)$

$x(-t) = \sin(\pi(-t)^2) = \sin(\pi t^2)$

$\Rightarrow$ even

$x(t) = \sin(\pi t + 1)$

$x(-t) = \sin(-\pi t + 1)$ $\neq \sin(\pi t + 1)$

$\neq -\sin(\pi t + 1)$

$\Rightarrow$ not even or odd

$x(t) = \cos(2\pi t)$

Compute even & odd parts

$x_e(t) = \frac{1}{2}\left[\cos(2\pi t) + \cos(-2\pi t)\right]$

$= \cos(2\pi t)$

$$x_o(t) = \frac{1}{2}\left[\cos(2\pi t) - \cos(-2\pi t)\right]$$

$\cos(2\pi t) - \cos(-2\pi t) = 0$

$$= 0$$

$$x(t) = 2t^2 + t + 1$$

$$x_e(t) = \frac{1}{2}\left[\underbrace{(2t^2 - t + 1)}_{x(-t)} + \underbrace{(2t^2 + t + 1)}_{x(t)}\right]$$

$$x_o(t) =$$

$$x(t) = \cosh(t)$$

$$x(t) = t\sin(t)$$

$$x(-t) = -t\sin(-t) = t\sin(t)$$

$$x(t) = t^2\tan(t)$$

$$x(-t) = -t^2\tan(t) = -x(t)$$

$x(t) = t \sin(t-1)$

$x(-t) = (-t)\sin(-t-1) = -t\sin(-t-1)$

$x_e = \frac{x(t) + x(-t)}{2}$

$x_o = \frac{x(t) - x(-t)}{2}$

$x(t) = \cos(2\pi t)$ $\qquad x(t+T) = \cos(2\pi(t+T))$

$x(t+T) = \cos(2\pi t + 2\pi T) = \cos(2\pi t)$

$T = 1$ $\qquad 2\pi T$ ← integer

$x_1 = e^{j2t}$ $\qquad x_2 = e^{j\pi t}$

$x_1(t)\,x_1(t) = e^{j(2t+\pi t)} = e^{j(2+\pi)t}$

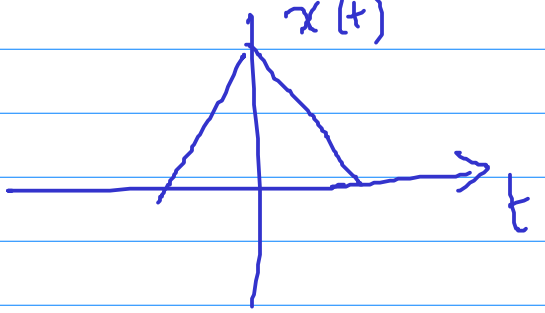
$\cos(w_0 t) + j\sin(w_0 t) = e^{jw_0 t}$

$x(t) = (-t)^3$

$x(t+T) = (-t-T)^3 \neq x(t)$

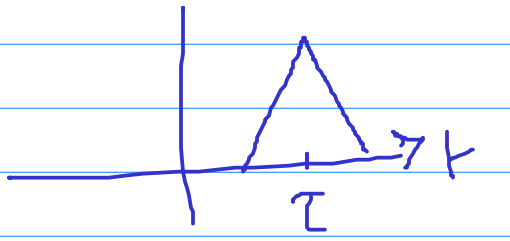
not periodic

$x(\cdot)$

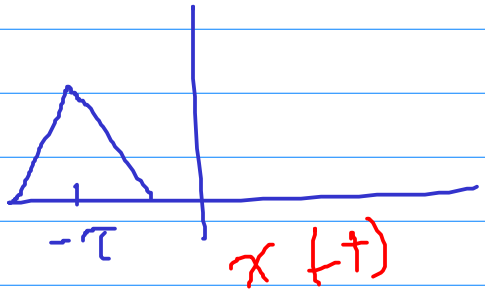


$x(t-T)$

$0 \Rightarrow t = T$

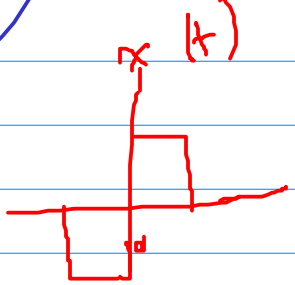


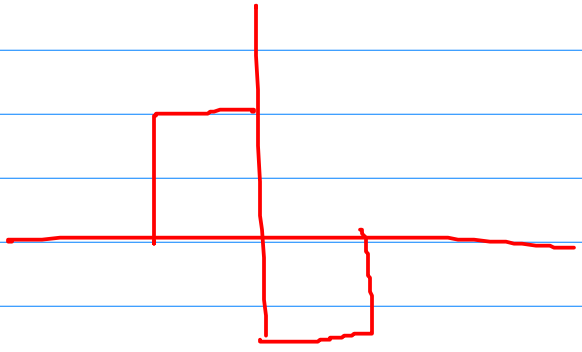
$x(t+T)$



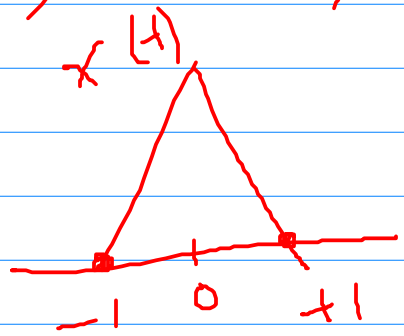
Reflected

$x(-t)$





$x(-t+2) \longrightarrow x(-t)$



$x(-t+2)$

scale

$x(2t)$

1

$t = \frac{1}{2}$