

EECS 360
Spring 2013
Quiz 1

Solution

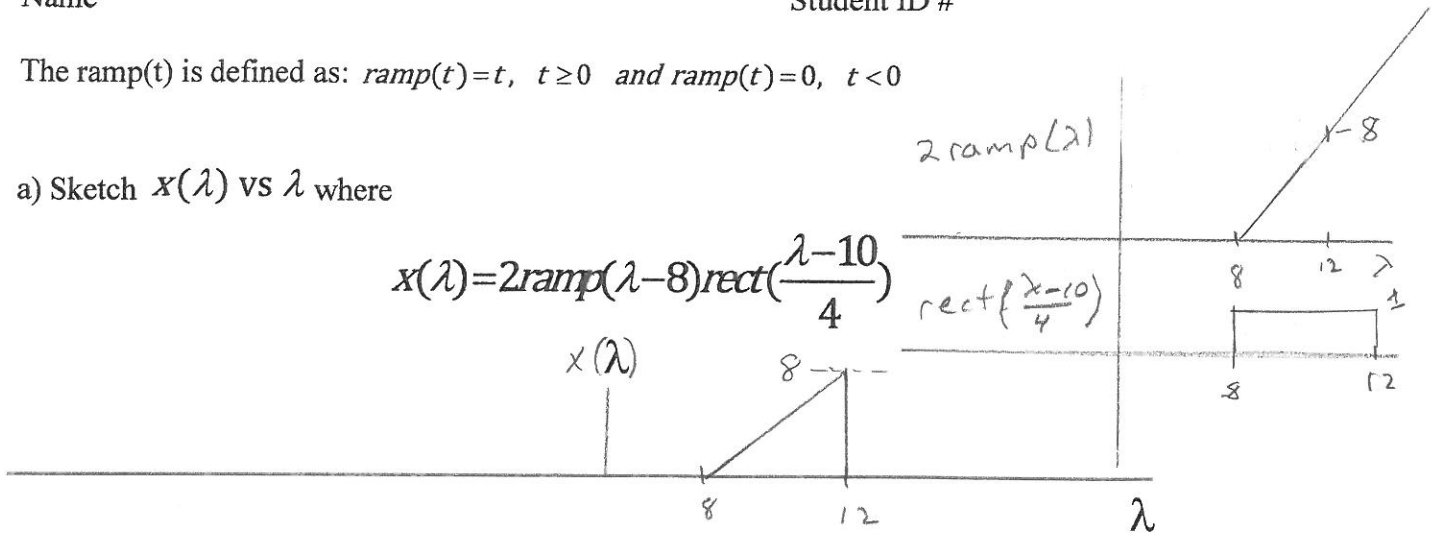
Name _____

Student ID # _____

The ramp(t) is defined as: $\text{ramp}(t) = t, t \geq 0$ and $\text{ramp}(t) = 0, t < 0$

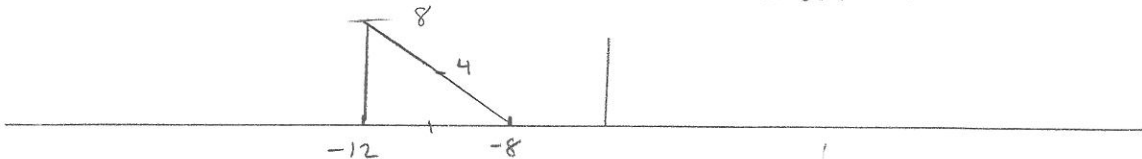
a) Sketch $x(\lambda)$ vs λ where

$$x(\lambda) = 2\text{ramp}(\lambda - 8)\text{rect}\left(\frac{\lambda - 10}{4}\right)$$



b) Using $x(\lambda)$ from part a) sketch $x(-\lambda)$

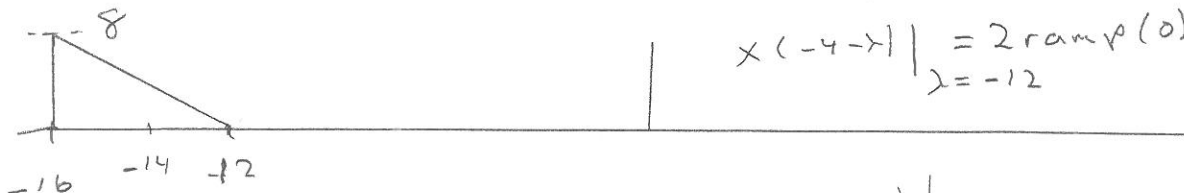
$$\begin{aligned} \text{note } x(-10) &= 2\text{ramp}(-(10-8))\text{rect}\left(-\left(\frac{10-10}{4}\right)\right) \\ &= 2\text{ramp}(2)\text{rect}(0) = 4 \end{aligned}$$



c) Using $x(\lambda)$ from part a) sketch $x(-4-\lambda)$

$$\begin{aligned} x(-4-\lambda) &= 2\text{ramp}(-4-\lambda-8)\text{rect}\left(\frac{-4-\lambda-10}{4}\right) \\ x(-4-\lambda) &= 2\text{ramp}(2)\text{rect}(0) = 4 \end{aligned}$$

$$\begin{aligned} \lambda &= -14 \\ x(-4-\lambda) &= 2\text{ramp}(0)\text{rect}\left(-\frac{1}{2}\right) = 0 \\ \lambda &= -12 \end{aligned}$$



$$\begin{aligned} x(-4-\lambda) &= 2\text{ramp}(4)\text{rect}\left(\frac{1}{2}\right) = 8 \\ \lambda &= -16 \end{aligned}$$