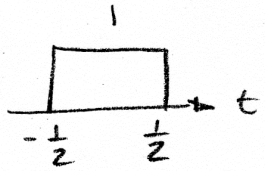
Name: Key

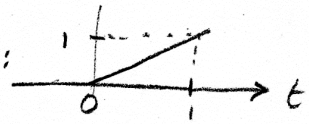
EE322 Fall 2012 Quiz 01
Be sure to label your axes.

1. Plot *rect*(*t*).

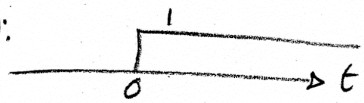


2. Plot *ramp*(*t*) · *u*(*t*).

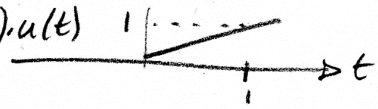
ramp(t):



u(t):



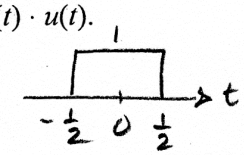
ramp(t)·u(t)



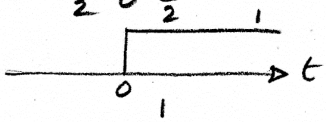
note: = ramp(t)

3. Plot $h(t) = rect(t) \cdot u(t)$.

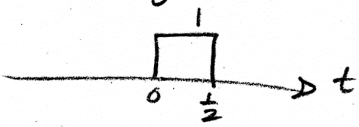
rect(t):



u(t):

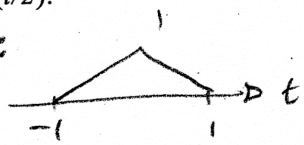


h(t):

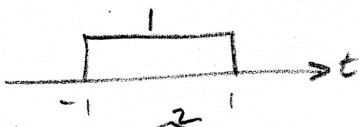


4. Plot *tri*(*t*)+*u*(*t*/2).

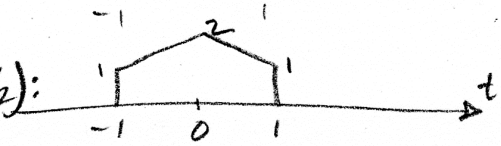
tri(t):



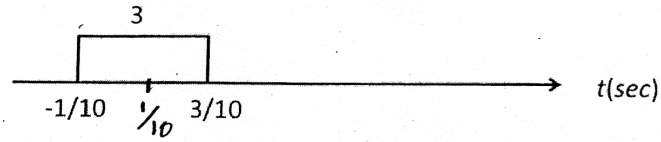
u(t/2):



tri(t)+u(t/2):



5. Write $g(t)$ in terms of rect(t), if $g(t)$ is graphed as shown below:



This is the rectangle function compressed in width from a width of 1 to a width of 0.4, Then shifted right by 0.1:

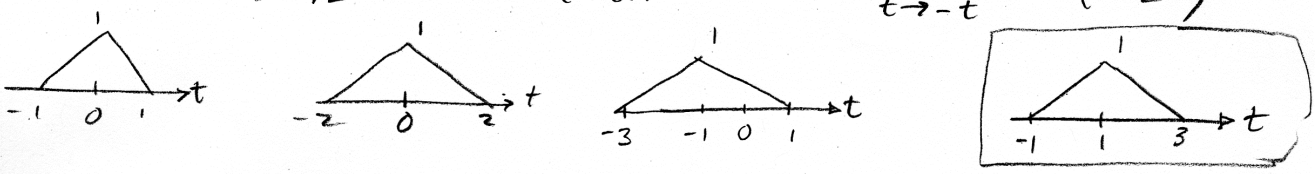
$$3\,\text{rect}(t) \xrightarrow[t \to t/0.4]{} 3\,\text{rect}(2.5t) \xrightarrow[t \to t-0.1]{} \boxed{3\,\text{rect}(2.5(t-0.1))}$$

or

$$\boxed{3\,\text{rect}(2.5t - 0.25)}$$

6. Plot $g(t) = tri\left(\frac{1-t}{2}\right) = tri\left(-\frac{t+1}{2}\right)$

$$tri(t) \xrightarrow[t \to t/2]{} tri(t/2) \xrightarrow[t \to t+1]{} tri\left(\frac{t+1}{2}\right) \xrightarrow[t \to -t]{} tri\left(\frac{-t+1}{2}\right)$$



7. Find x and y if: note: There are many ways to solve this:

(1) $2x - 7y = 5$

~~$x + 12y = 6$~~

(2) $x + 14y = -15$

$$\left.\begin{aligned} 2x - 7y &= 5 \\ -2x - 28y &= 30 \end{aligned}\right\} \text{step 1 - mult eqn (2) by } -2$$

$$\left.\begin{aligned} -35y &= 35 \\ \boxed{y = -1} \end{aligned}\right\} \text{step 2 - solve for } y$$

$$x + 14(-1) = -15$$

$$\boxed{x = -1}$$

step 3 - plug value of y back into eqn (2) and solve for x

Bonus: What two countries fought the Battle of Tsushima Straits in 1905, and who won?

Japan vs Russia, Japan won.