

ELEC2400 - Matlab Computer Laboratory # 1

- All the MATLAB computer laboratories involve tasks being given which you must solve in MATLAB.
- The assessment for the laboratory requires you to hand in, **by 5pm on the Friday of the week you do the lab**, a file with the title `labx.m` (where `x` is the number of the lab in the title of this sheet).
- This file should be a MATLAB script file which when run, is your MATLAB solution to the tasks given. For example, for this first laboratory, your disk should contain the file `'lab1.m'`.
- The file should be handed in via the blackboard link in the “tutorials” section of the course home page at www.ee.newcastle.edu.au/brett/elec2400/tuts.html
- If your name is 'Felix Student', and your student number is '6309070', then the first 3 lines of your file `lab1.m` should be

```
% Name: Felix Student
% Student Number: 6309070
clear all; close all;
```

- Precede each `plot` command with a `figure` command to open up a new figure window for each plot.
- Try to divide your solution file into sections that pertain to the individual questions on this sheet. This is best done by using a comment in your file `lab1.m` such as:

```
% Solution to question 2(a) follows:
```

Now start MATLAB and address the following questions:

1. Generate vectors in MATLAB to plot the signals as shown in figure 1.
2. **Using the vectors** you generated in question #1 together with basic operations on them, generate new vectors which will plot the signals shown in figure 2
3. Use MATLAB to generate plots of the following signals over the interval $t \in [-3, 3]$. Include a grid, x and y -axis labels, and a title on your plot

(a)

$$h(t) = \begin{cases} 0 & ; t \leq -0.5 \\ e^{-t/2} & ; t > -0.5 \end{cases}$$

(b)

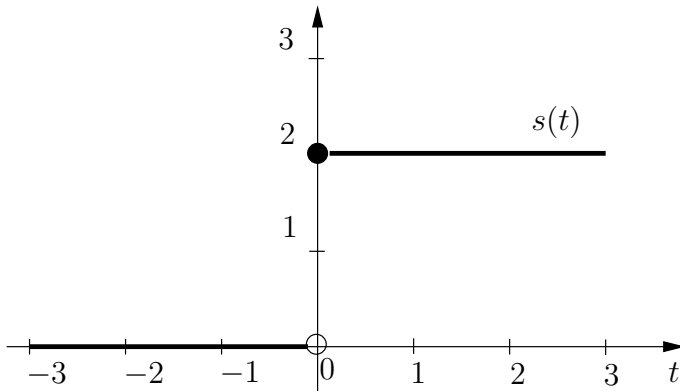
$$k(t) = \begin{cases} 0 & ; t \leq -1 \\ \cos\left(\frac{3\pi}{4}t + \frac{\pi}{3}\right) & ; t > -1 \end{cases}$$

(c)

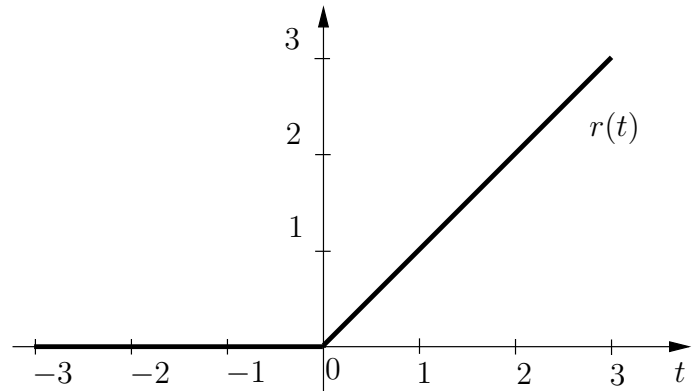
$$p(t) = \begin{cases} 0 & ; t \leq 0 \\ \sin\left(\frac{\pi}{4}t\right) \cos\left(\frac{2\pi}{3}t\right) & ; t > 0 \end{cases}$$

(d)

$$w(t) = \begin{cases} 0 & ; t \leq 0 \\ e^{-t/3} \sin \frac{5\pi}{4} t & ; t > 0 \end{cases}$$

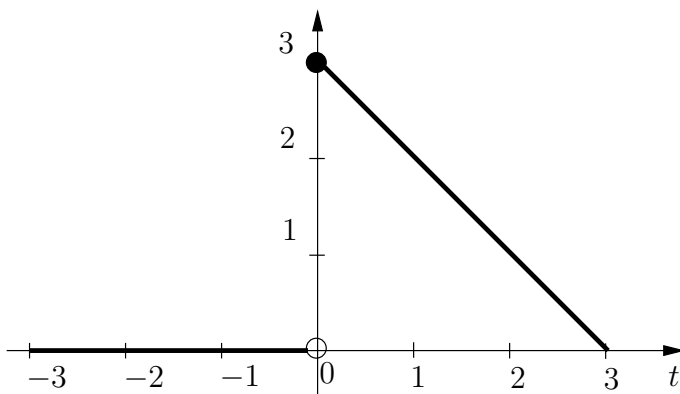


(a) $s(t)$

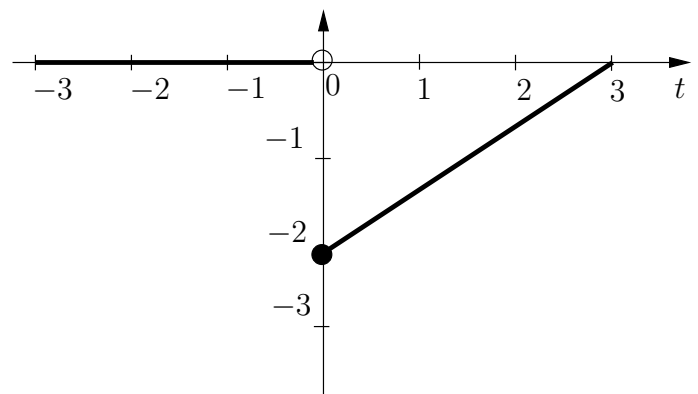


(b) $r(t)$

Figure 1: Signals to be plotted in question 1



(a) $f(t)$



(b) $g(t)$

Figure 2: Signals to be plotted in question 2