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homework1.m | MATLAB_review.m | homework3_question197.mlx | Homework2.m

Problem 1.97

A rectangular pulse x(t) is defined by

x(t) =

10, 0 <= t <= 5

0, otherwise

Generate x(t), using

(a) A pair of time-shifted step functions

(b) An M-file (numerically)

## Part (a)

```
1  syms t;
2  subplot(2,1,1)
3  unit_step = 10 * (heaviside(t) - heaviside(t - 5));
4  fplot(unit_step, [-5 15]);
5  ylim([-5 15])
6  title('Problem 1.97a: Seth Ricks');
7  xlabel('t');
8  ylabel('x(t)');
9  grid on;
```

## Part (b)

```
10 t = -5:0.01:15;     % Time
11 x = 10 * (t >= 0 & t <= 5); % True for x>=0 and t <=5, false otherwise
12 subplot(2,1,2)
13 plot(t, x);
14 ylim([-5 15])
15 xlim([-5 15])
16 title('Problem 1.97b: Seth Ricks');
17 xlabel('t');
18 ylabel('x(t)');
19 grid on;
```

Figure

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