

Homework 2016-03-21

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March 21, 2016

Problem 1.

The relationship of amplitude and argument of the LTS system with the angle ω .

Proof. **0.1** The code is shown as follows.

```
1 r = @(omega)(5-4.*cos(omega));
2 phi = @(omega)(mod(2*(pi - atan(sin(omega) ./ (2-cos(omega)))) - omega), 2*pi));
3
4 xx = 0:1e-6:2*pi;
5 ry = r(xx);
6 phiy = phi(xx);
7
8 plot(xx, ry);
9 hold on;
10 plot(xx, phiy);
11
12 legend('amplitude', 'argument', 'Location', 'Best');
13 title('The amplitude and argument with omega');
14 grid on;
```

0.2 The result is shown as follows.

□

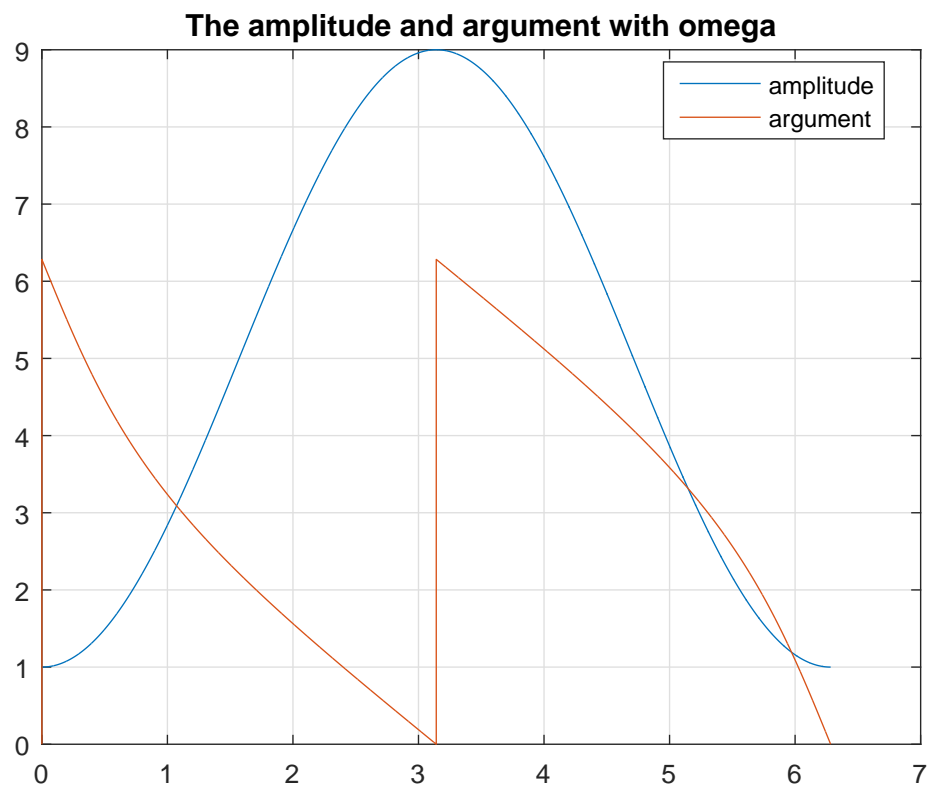


Figure 1: The relationship of amplitude and argument with omega.