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4b

```
% C = 5uF
% R = 48 kOhm
% f = 6.63*10^-4 Hz

close all;
clear all;
clc;

% Transfer function: H(s)=0.240s/0.240s+1

% Numerator
num = [0.240];

% Denominator
den = [0.240 1];

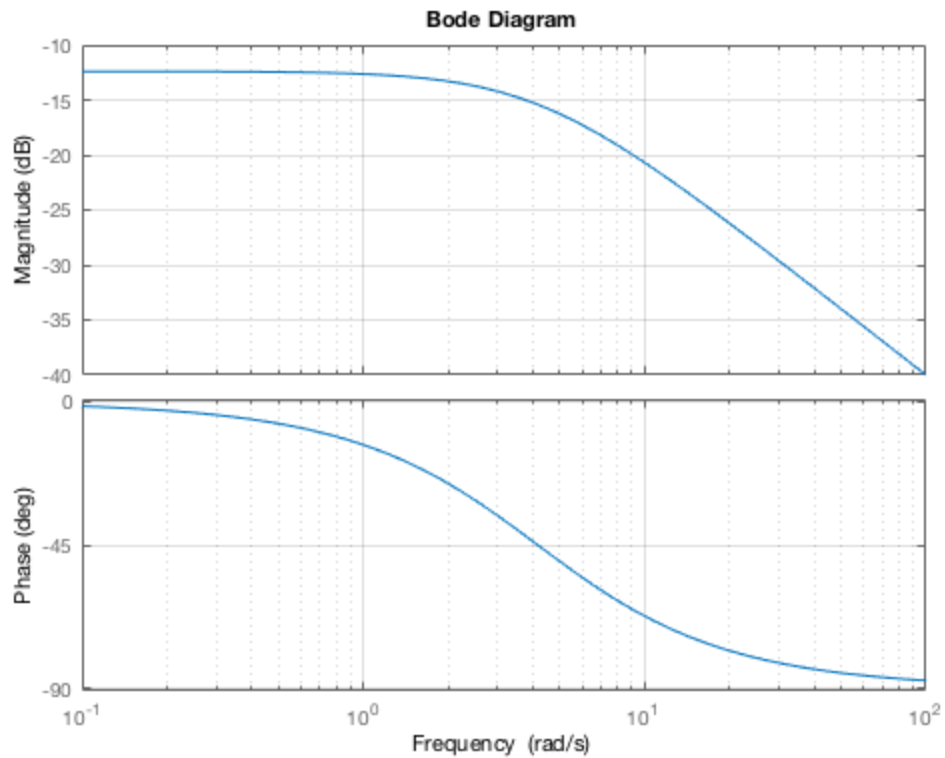
% Transfer function
G = tf(num, den)

% Plot frequency response
figure (1)
bode(G), grid
```

$G =$

$$\frac{0.24}{0.24 s + 1}$$

Continuous-time transfer function.



4c

```
% Transfer function:  $H(s)=0.240s/(0.53 \cdot 10^{-4}s^2+0.242s+1)$ 
```

```
% Numerator
num1 = [0.240];
```

```
% Denominator
den1 = [(0.53*10^-4) 0.242 1];
```

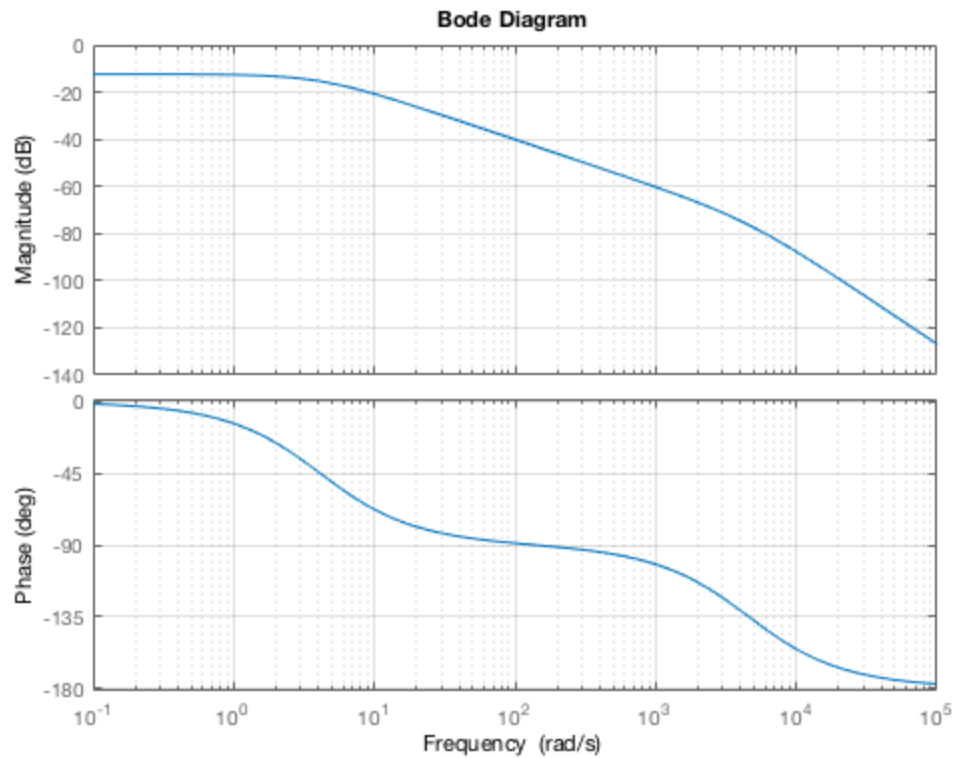
```
% Transfer function
G1 = tf(num1, den1)
```

```
% Plot frequency response
figure (2)
bode(G1), grid
```

```
G1 =
```

$$\frac{0.24}{5.3e-05 s^2 + 0.242 s + 1}$$

Continuous-time transfer function.



4d

```
% Transfer function:  $H(s) = (6.37 \cdot 10^{-4})s / (6.37 \cdot 10^{-4}s + 1)$ 
```

```
% Numerator
```

```
num2 = [(6.37*10^-4)];
```

```
% Denominator
```

```
den2 = [(6.37*10^-4) 1];
```

```
% Transfer function
```

```
G2 = tf(num2, den2)
```

```
% Plot frequency response
```

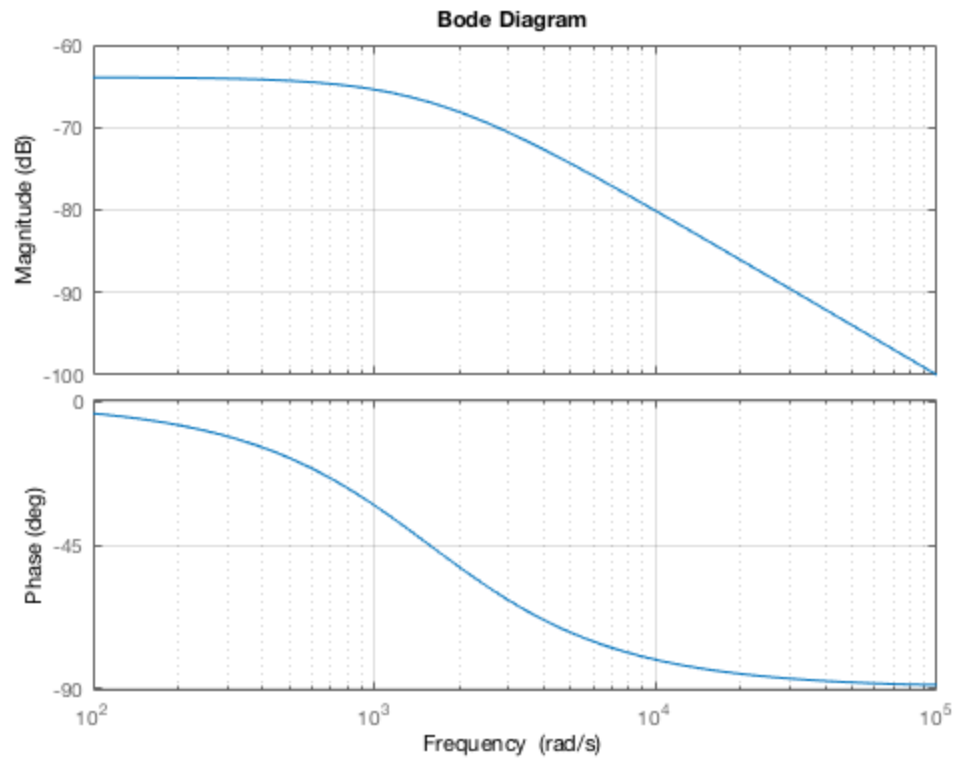
```
figure (3)
```

```
bode(G2), grid
```

```
G2 =
```

```
      0.000637  
-----  
0.000637 s + 1
```

```
Continuous-time transfer function.
```



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