```
T = 4;
A = 5;
R = 1000;
C = 0.0005;
```

```
t = -T:0.04:2*T
```

t = 1×301
   -4.0000   -3.9600   -3.9200   -3.8800   -3.8400   -3.8000   -3.7600   -3.7200 ···

```
n = (1:80)'
```

n = 80×1
    1
    2
    3
    4
    5
    6
    7
    8
    9
   10
    :
    :

```
wn = 2 * pi * n / T
```

wn = 80×1
   1.5708
   3.1416
   4.7124
   6.2832
   7.8540
   9.4248
  10.9956
  12.5664
  14.1372
  15.7080
    :
    :

```
a0 = A
```

a0 = 5

```
bn = A * (1 - cos(n * pi)) ./ (n * pi)
```

bn = 80×1
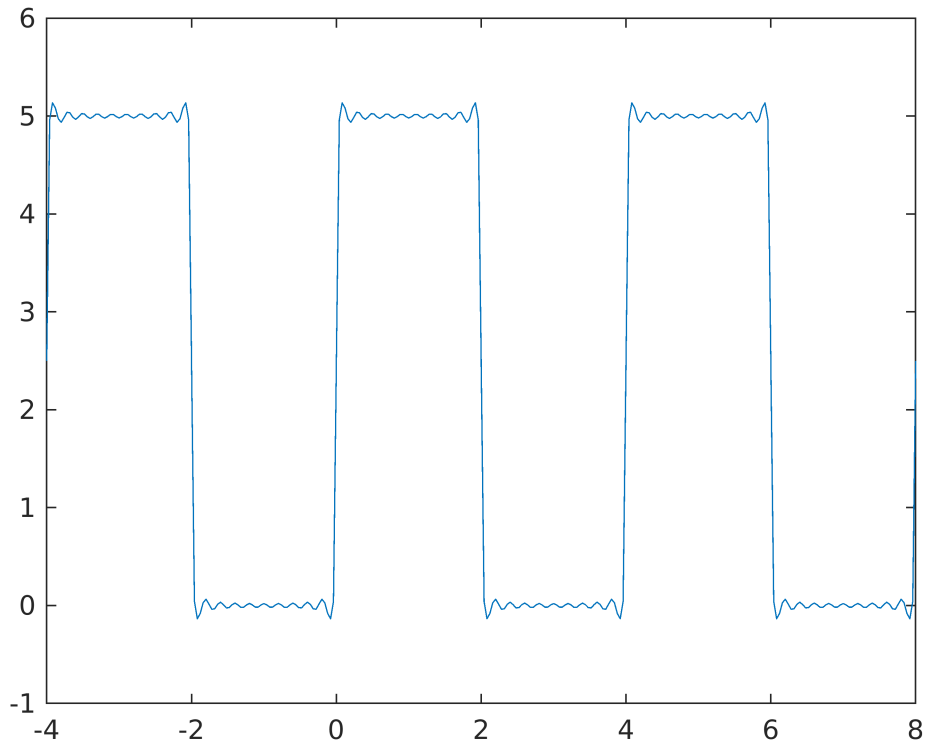   3.1831
       0
   1.0610
       0
   0.6366
       0
   0.4547
       0
   0.3537

```
      0
    :
    :
```

```
Vin = a0 / 2 + sum(bn .* sin(wn .* t), 1)
```

```
Vin = 1×301
    2.5000    4.9586    5.1349    5.0812    4.9717    4.9358    4.9849    5.0385 ...
```

```
plot(t, Vin)
```



```
magHjw = 1 ./ sqrt(1 + (R * C * wn).^2)
```

```
magHjw = 80×1
    0.7864
    0.5370
    0.3907
    0.3033
    0.2468
    0.2076
    0.1790
    0.1572
    0.1401
    0.1263
     :
     :
```

```
magHj0 = 1 ./ sqrt(1 + (R * C * 0)^2)
```

```
magHj0 = 1
```

```
angleHjw = atan(-R * C * wn)
```

```
angleHjw = 80×1
   -0.6658
   -1.0039
   -1.1694
   -1.2626
   -1.3214
   -1.3617
   -1.3909
   -1.4130
   -1.4303
   -1.4442
     :
     :
```

```
Vc = magHj0 * a0 / 2 + sum(bn .* magHjw .* sin(wn .* t + angleHjw), 1)
```

```
Vc = 1×301
    0.1153    0.4720    0.8170    1.1365    1.4334    1.7087    1.9626    2.1957 ···
```

```
plot(t, Vin)
hold on
plot(t, Vc)
hold off
```