(1) $\dfrac{100(1+j\omega/10)}{(1+j\omega/80)(1+j\omega/900}$

Bode Attached; Figure 9.1

$20\log 100 = 40\,dB$

zero @ 10; poles @ 80, 900

(2) $\dfrac{50,000}{(10+j\omega)(100+j\omega)}$

put in Bode form

$$\frac{50,000}{10\times100\,(1+j\omega/10)(1+j\omega/100)}$$

$$\frac{50}{(1+j\omega/10)(1+j\omega/100)}$$

$20\log 50 \doteq 34\,dB$

See Figure 9.2 for Bode

(3) Put the transfer function in polynomial form:

$$\frac{100(1+j\omega/10)}{(1+j\omega/80)(1+j\omega/900)} \Rightarrow \frac{80\times900\times100\,(s+10)}{10\,(s+80)(s+900)}$$

$$\frac{720,000\,(s+10)}{s^2+980s+72,000} = \frac{720,000s+7200000}{s^2+980s+72,000}$$

#3 continued

Use the bode function of MATLAB

num = [720000 7200000]

den = [1 980 72000]

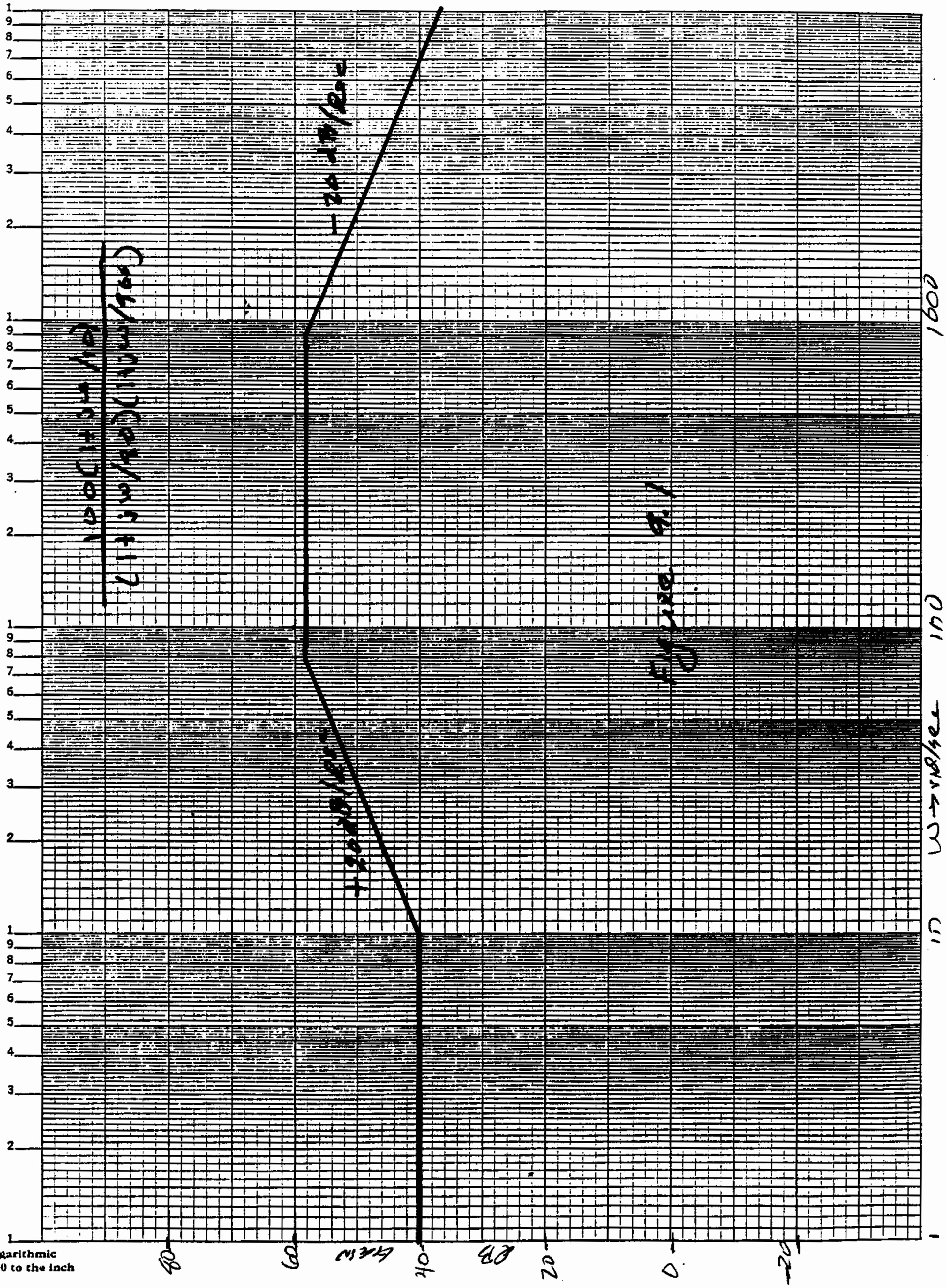
Program given below:

C:\MATLAB6p5\work\HWBode.m
November 18, 2004

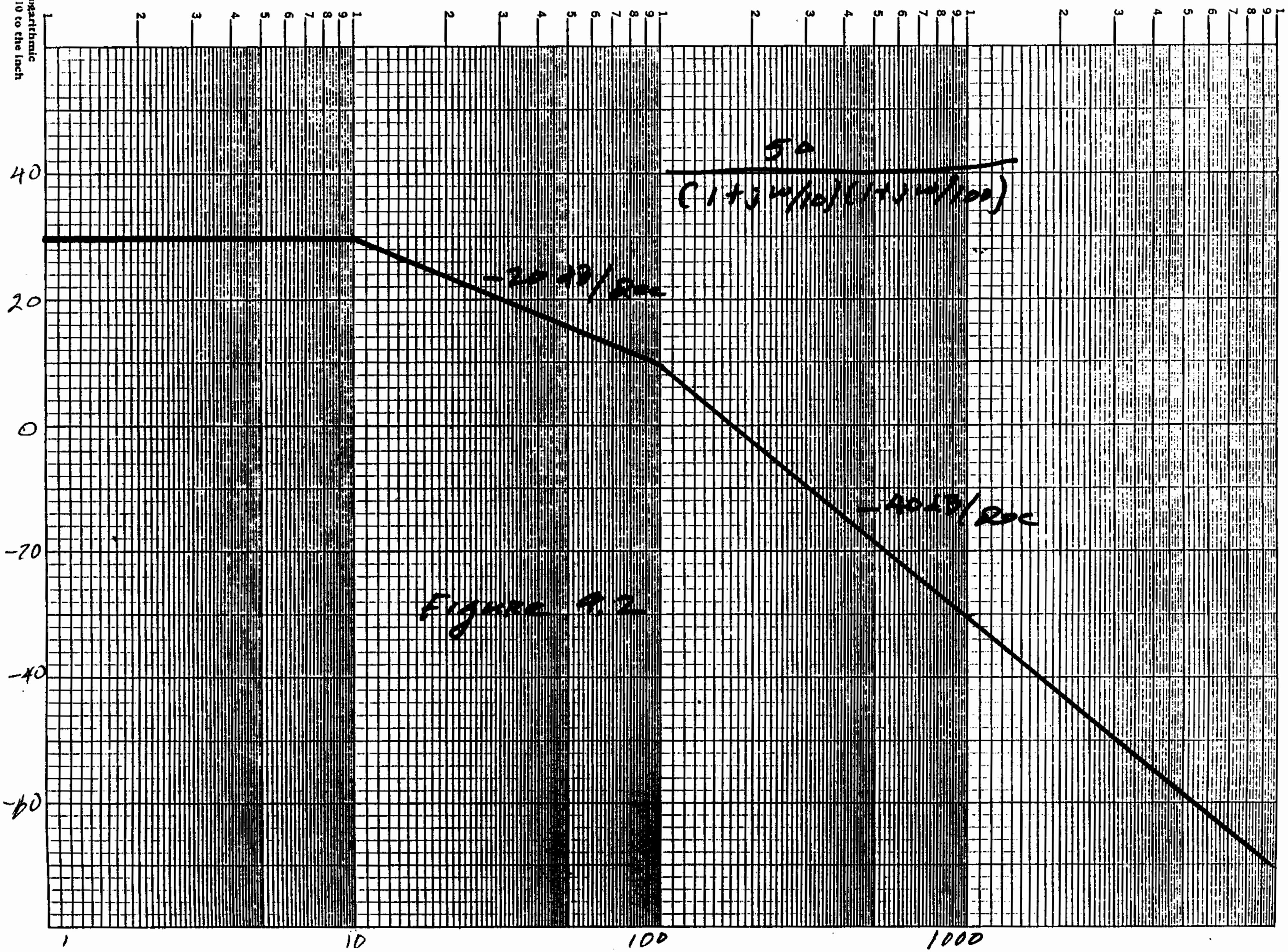
```
%  For HW Set 9:  ECE 301 Fall Semester, 2004
%  Prepared by:  W. Green:  Program HWBode.m

num = [720000, 7200000];
den = [1 980 72000];

bode(num,den)
grid
```

Plot given as Figure 9.3

NATIONAL 12-184



Semi-Logarithmic
4 Cycles x 10 to the inch



HW#9

#3

Figure 9.3