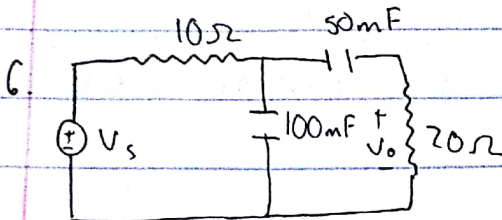


Rishabh Shah

12/12/2017

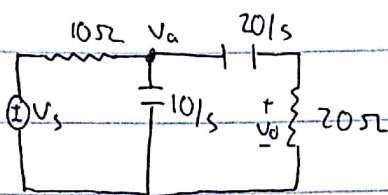
4655 4192

EECS 215 HW 12



$$j\omega = s$$

$$50 \text{ mF} \rightarrow \frac{20}{s}$$



$$100 \text{ mF} = \frac{10}{s}$$

$$V_a = V_o + \frac{20}{s} \left( \frac{V_a}{20/s + 20} \right) = V_o + \frac{V_a}{1+s}$$

$$V_a (1 - 1/(1+s)) = V_o = V_a (s/(1+s)) = V_o (1+s/s)$$

$$\frac{V_a - V_s}{10} + \frac{V_a \cdot s}{10} + \frac{V_a}{20 + 20/s} = 0$$

$$\frac{V_a}{10} + \frac{s V_a}{10} + \frac{s V_a}{20s + 20} = \frac{V_s}{10}$$

$$V_a + s V_a + \frac{s V_a}{2s + 2} = V_s = V_o \left( \frac{1+s}{s} \right) + \frac{s V_o \left( \frac{1+s}{s} \right) + s V_o \left( \frac{1+s}{s} \right)}{2s + 2} =$$

$$V_s = V_o \left( \frac{2 + 2s + 2s + 2s^2 + s}{2s} \right) =$$

$\frac{V_s}{V_o} = \frac{2s}{2s^2 + 5s + 2}$
--

$$12 \quad T(s) = \frac{100(s+10)}{s(s+10)} = \frac{100(j\omega+10)}{j\omega(j\omega+10)} = \frac{1000(j\omega/10+1)}{10j\omega(j\omega/10+1)}$$

$$15 \quad H(s) = \frac{2(s+1)}{(s+2)(s+10)} = \frac{2(j\omega+1)}{(j\omega+2)(j\omega+10)} = \frac{2(j\omega+1)}{2(j\omega/2+1)10(j\omega/10+1)}$$

$$22 \quad 20 = 20 \log k$$

$$k = 10$$

from 2 to 20,  $1 + j\omega/2$

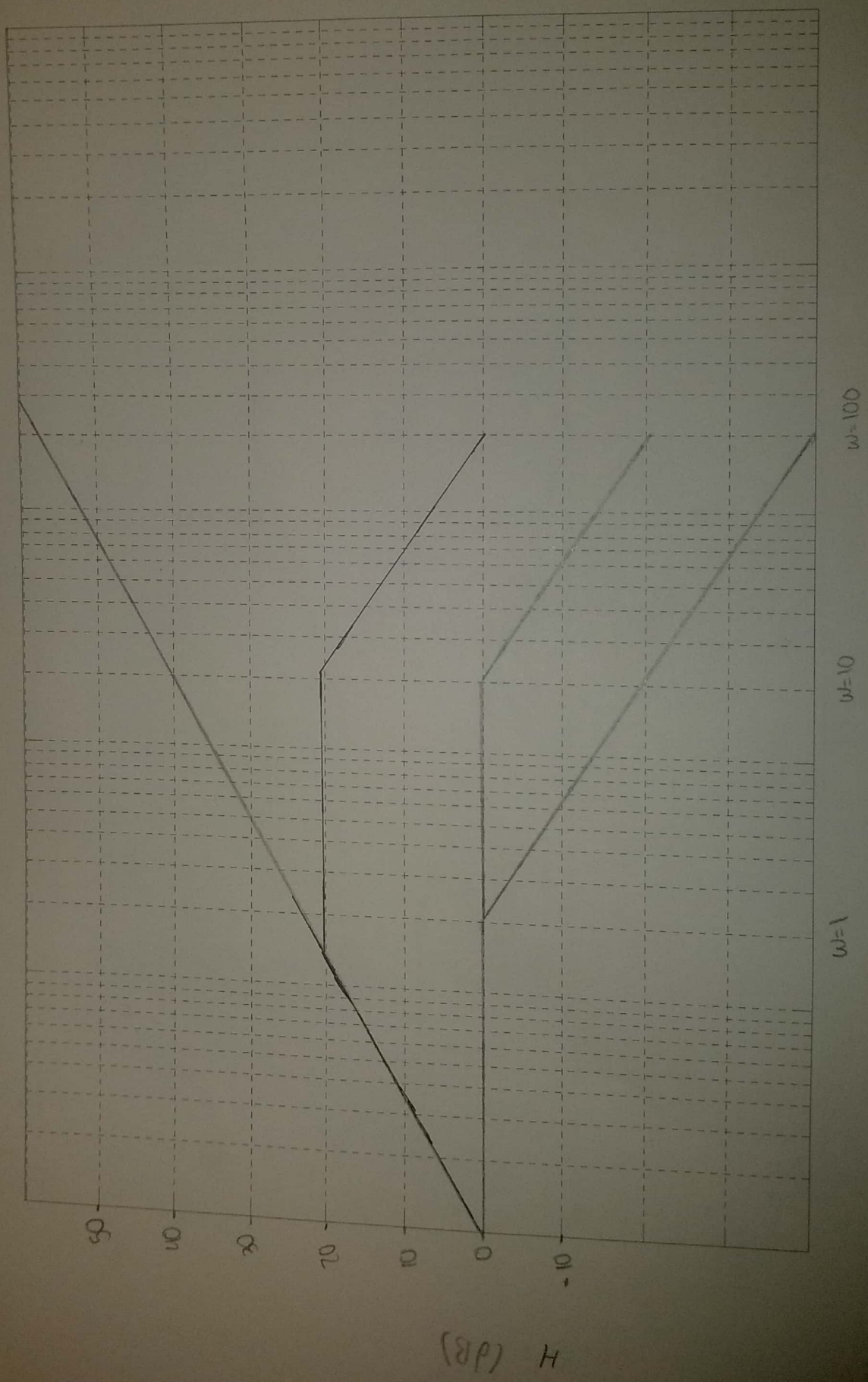
20 to 100,  $\frac{1}{1 + j\omega/20}$

100 to  $\infty$ ,  $\frac{1}{1 + j\omega/100}$

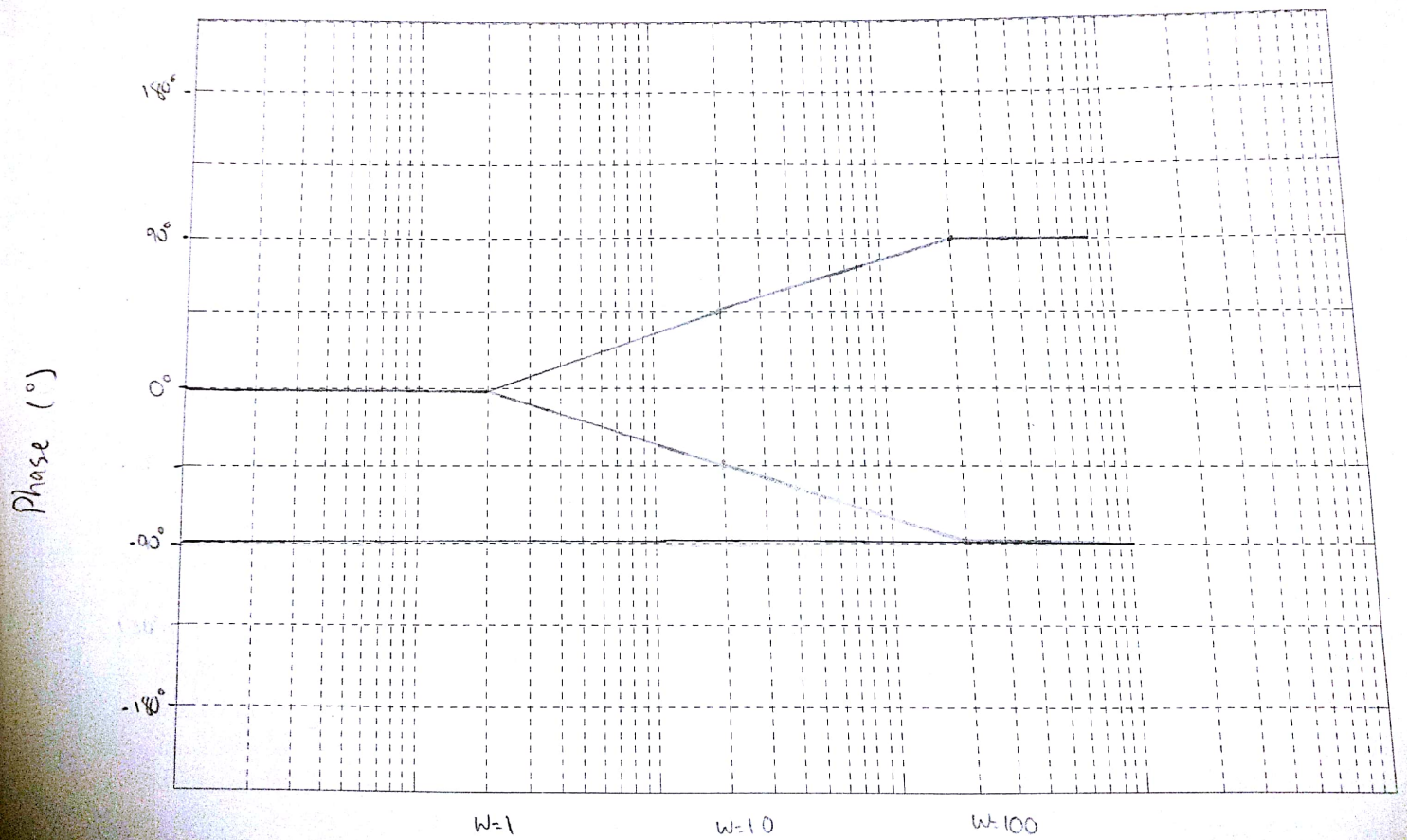
$$H(\omega) = \frac{10(1 + j\omega/2)}{(1 + j\omega/20)(1 + j\omega/100)}$$



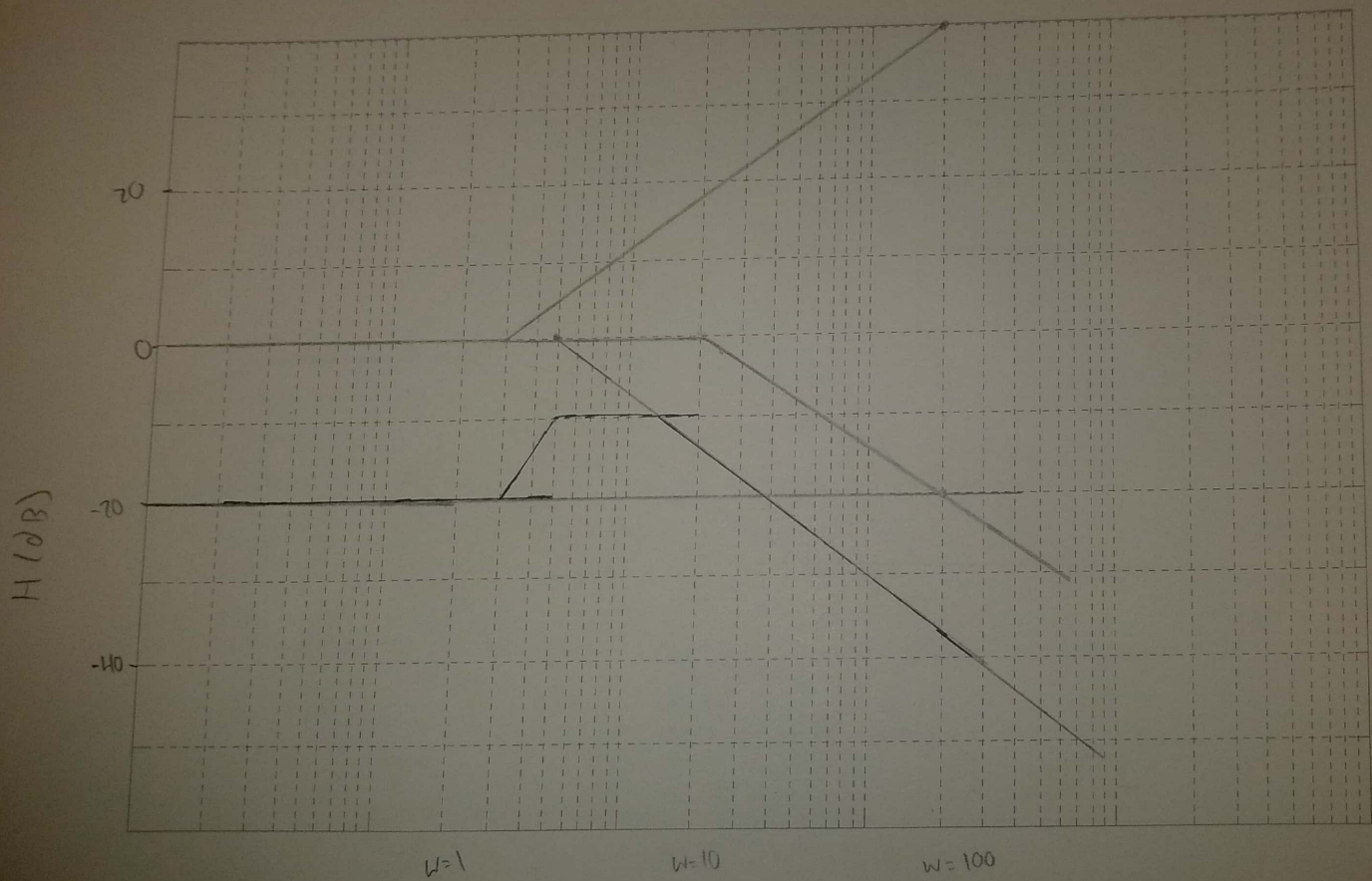
# Semi-log Paper for Bode Plots #12



## Semi-log Paper for Bode Plots #12



# Semi-log Paper for Bode Plots #15





# Semi-log Paper for Bode Plots #15

