

ECE3204 Finding Loop Gain

1

Set all independent sources equal to zero

2

Break feedback loop (don't change loading)

2A

Redraw in A, β format for clarity (optional)

3

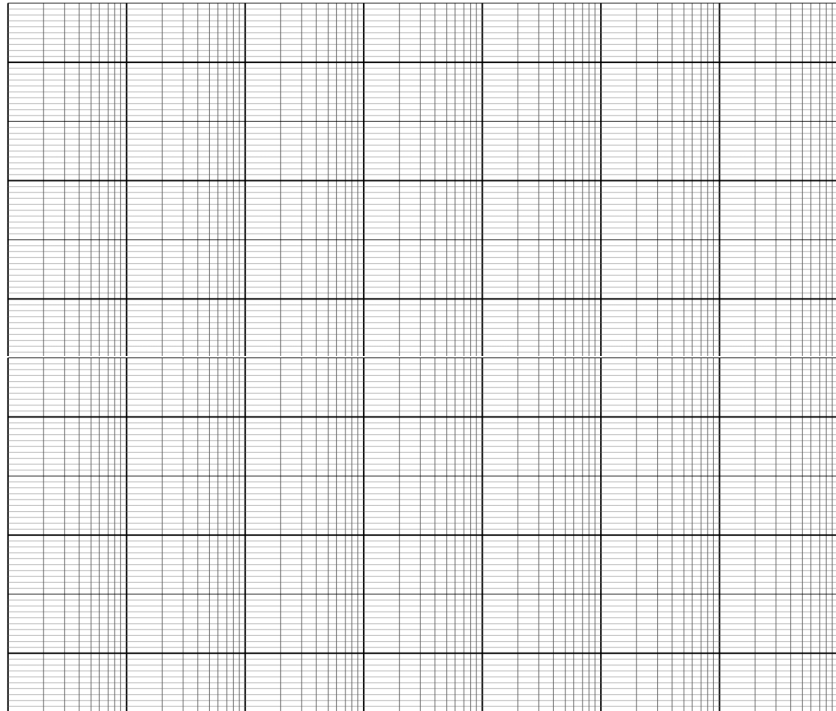
Find
 $|A|, |\beta| \quad \angle A, \angle \beta$

ECE3204 Stability Analysis Procedure (I)

1

Plot Loop Gain

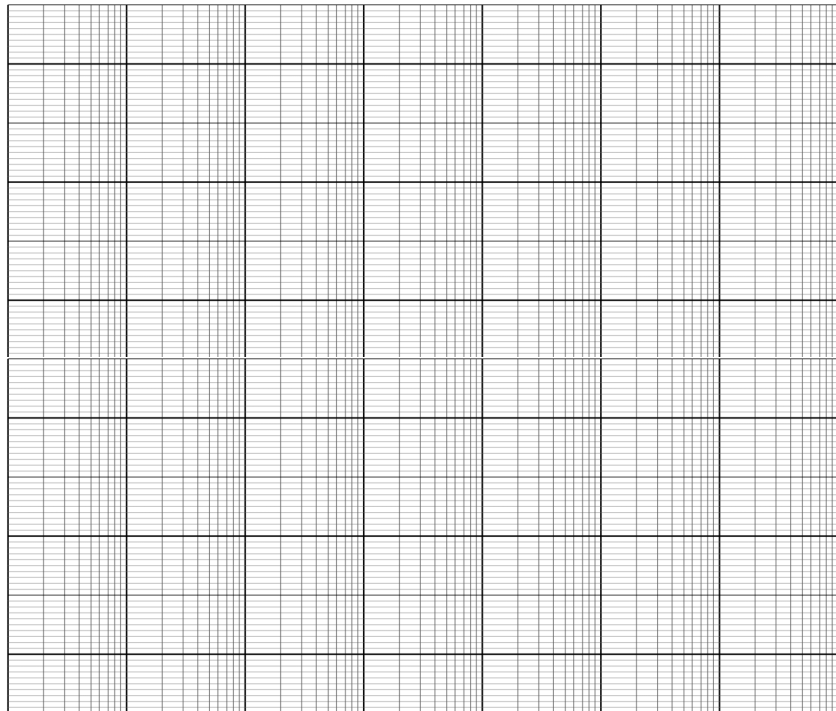
$$|A\beta| \angle A\beta$$



2

Find f_1

Frequency at
which $|A\beta|=1$



3

Check $\angle A\beta$ at f_1
compared to -180°

ECE3204 Stability Analysis Procedure (II)

1

Plot $|A|, \left| \frac{1}{\beta} \right|$

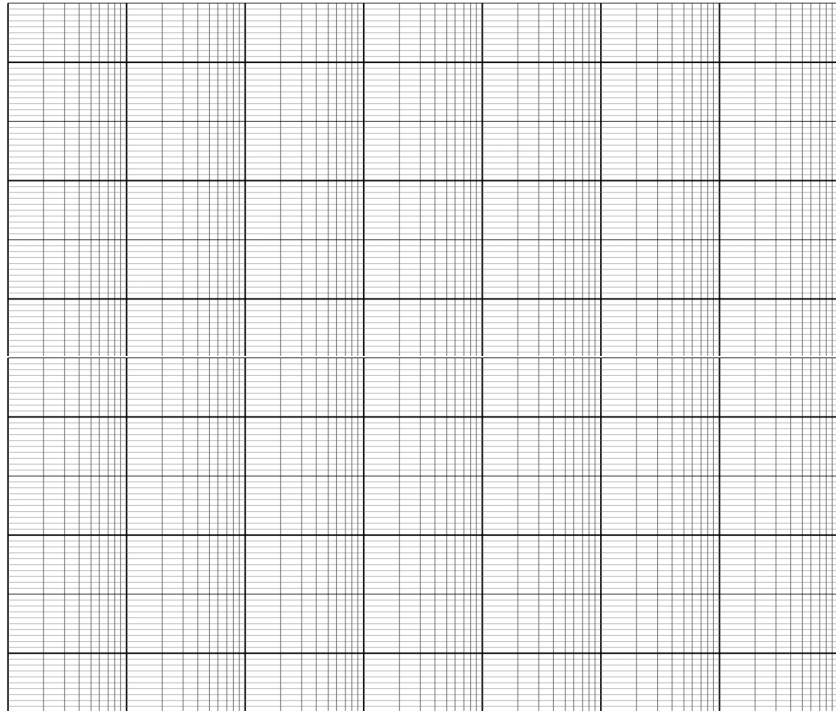
2

Find f_1

Frequency at

which $|A| = \left| \frac{1}{\beta} \right|$

(same as $|A\beta| = 1$)



3

Check "rate of closure)

between $|A|, \left| \frac{1}{\beta} \right|$ at f_1

compared to 40dB/dec