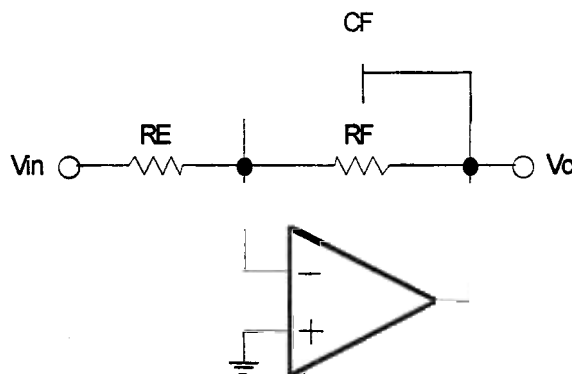


NAME: SOLUTIONS

CIRCLE LAB GROUP: WED THU

$R_E = 1k$ $C_F = 1 nF$ $R_F = 10k$

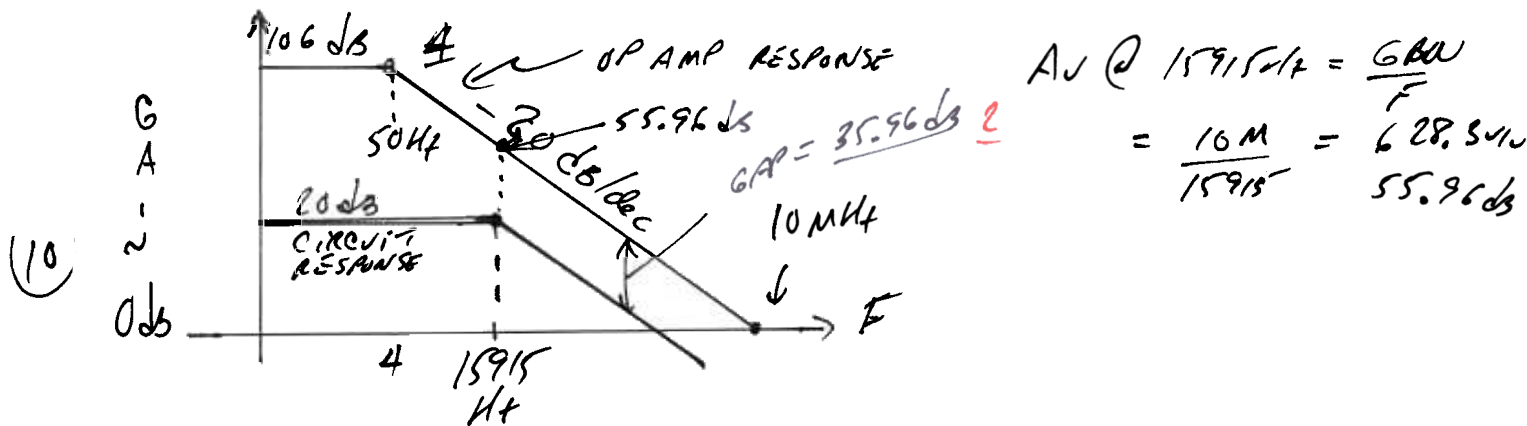
Op Amp: $A_{V(DC)} = 200\,000$ V/V
 $GBW = 10$ MHz
 Slew rate = 10 V/ μ s



For squarewave If $V_p < \frac{S_R}{4\pi F_C}$
 then $t_r = t_f = 0.35/F_C$

TF $\frac{V_o}{V_{in}} = -\frac{R_F}{R_E} \times \frac{1}{(1 + C_F R_F S)}$

1 Sketch the op amp gain response and the circuit's ideal response on the same graph and label all of the relevant values including the gap between the two responses at high frequency.



2. If the input is a $0.3 V_{pp}$ squarewave, determine the 10%-90% rise time of the O/P. Are the edges of V_o linear or exponential? Explain.

$V_p < \frac{10^7}{4\pi \cdot 15915} = 50V$ $V_o = 0.5V_p \times 10 = 1.5V_p < 50V_p$
 therefore expon. edges
 $t_r = 0.35 / 15915 = 22\mu s$

3. What happens to the accuracy of F_C of the circuit as the GBW of the op amp increases? Explain

GBW \uparrow , GAP \uparrow and actual F_C gets closer to ideal value $F_C = 1/(2\pi R_F C_F)$