CE 1

$\frac{1.2(10.8)x}{12} = 750$ $R_{EA} = 250$ $\frac{1.2(10.3)x}{12} = \frac{300(250)}{100}$

$x = 694.444$ $R_{C1} = 2.5k$

$R_1 = 7500$ $r_e' = 12.5$

$R_2 = 633$ $R_{in\ stage\ I} = R_1 \| R_2 \| \beta(re')$

$= 74k \| 800(12.5)$

$= 624.3$

$V_{out} = 1.5V$

$R_{out} =$

CE 2

$A_{V_{II}} = 199.5$

$\frac{R_C \| R_{mcc}}{re' + R_{E2}}$ $r_c = R_C \| R_{mcc}$ (R_{out}) $R_{in\ stage\ II} = R_5 \| R_6 \| \beta(re' + R_{E2})$

$= 2368$ $= 741$

$\frac{5V}{1.5} = 3.33$

$\frac{r_c}{re' + R_{E2}} = 3$ (swamping resistor)

$\frac{2368}{49.3 + R_{E2}} = 3$

$R_{E2} = 1240$

$R_{E22} = 40$ $\frac{1.2(10.8)}{12}$

$C_{1mm} = \frac{1}{2\pi R f}$

$= 2\mu F$

$C_{B\,mm} = \frac{1}{2\pi f R}$

$= 13\mu F$

$C_{2mm} = \frac{1}{2\pi f (R_C + R_3 \| R_4)}$

$= 12nF$

$R_{in\ base\ for\ CC}$

$\frac{\beta(40k)}{100} = \frac{8(4)x}{12}$

$x = 16875$

$R_3 = 67500$

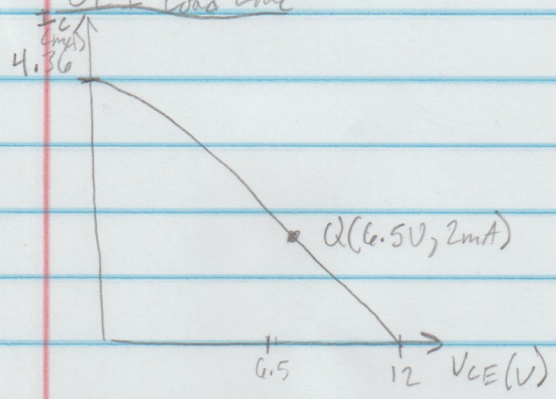
$R_4 = 135k$

$$C_3 = \frac{1}{\times 2\pi f\left(r_e'_2 + R_{in\,stage}\right)}$$

$$R_{in\,stage} = \frac{R_3 \| R_4 \| R_c}{\beta}$$

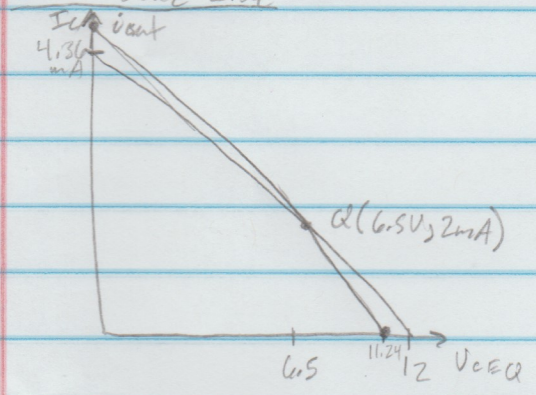
$= 317\,\mu F$

CE1 Load Line



$$M_{pp} = 2\,mm(6.5V, r_c I_c)$$
$$= 2\,mm(6.5, 1.15)$$
$$= 3.3V$$

CE2 Load Line



$$M_{pp} = 2\,mm(6.5V, r_c I_c)$$
$$= 2\,mm(6.5V, 4.74)$$
$$= 9.48V$$

$$V_{cutoff} = 6.5 + 4.24$$
$$= 11.24V$$

$$i_{sat} = 2mA + \frac{6.5}{2368.42}$$
$$= 4.744mA$$

$$A_{V_{tot}} = V_{out}/V_{in} = \frac{3.1V}{10mV} = 310$$

$$A_i = \frac{224\,mA}{2.6mA} = 8615.4$$