pre lab 2

1) b) ω: $T_1 = 1$ ms

$T_2 = 1.137$ ms

$T_2 - T_1 = T = 136.634$ μs

$\omega = \frac{2\pi}{136.634} = 45986$ rad/s

σ:

$V_{o_1} = 3.945$ V at peak 1

$V_{o_2} = -1.615$ V at peak 2

$$\sigma = \frac{2}{T} \ln\left(\frac{-V_{o_1}}{V_{o_2}}\right)$$

$\boxed{\sigma = 13073}$

d) $A = 9.97$

τ:

$V_o(t=\tau) = 9.97(1-e^{-1}) = 6.302$V

$T = \boxed{35\ \mu s = \tau}$

2b) ω:

$T_2 = 1.136\ ms$

$T_1 = 1ms$

$T = T_2 - T_1 = 136.364\ MS$

$\omega = 2\pi/T = 46076$

σ:

$V_{O_1} : 17$ at peak 1

$V_{O_2} : 12.2$ at peak 2

$$\sigma = \frac{2}{T} \ln\left(\frac{V_{O1}}{V_{O2}}\right)$$

$\boxed{\sigma = 4866.1}$

d)

$\boxed{A = 9.520}$

$V(t=\tau) = A(1-e^{-1}) = 6.017$

$\boxed{\tau = 40.7\ MS}$

3b) ω:

$$\frac{2\pi}{T_2 - T_1} \quad \frac{2\pi}{129.5MS} = \boxed{48518\ rad/s}$$

σ : V_{O_1} 120.6

V_{O_2} -99.1 mV

$$\sigma = \frac{2}{129.5MS} \ln\left(\frac{120.6}{99.1}\right)$$

$\boxed{\sigma = 3032.4}$

3d)

$A = 9.836\ V$

$t = \tau$

$V(t=\tau) = Ae^{-1} = 3.618$

$\tau = 85.2\ \mu s$