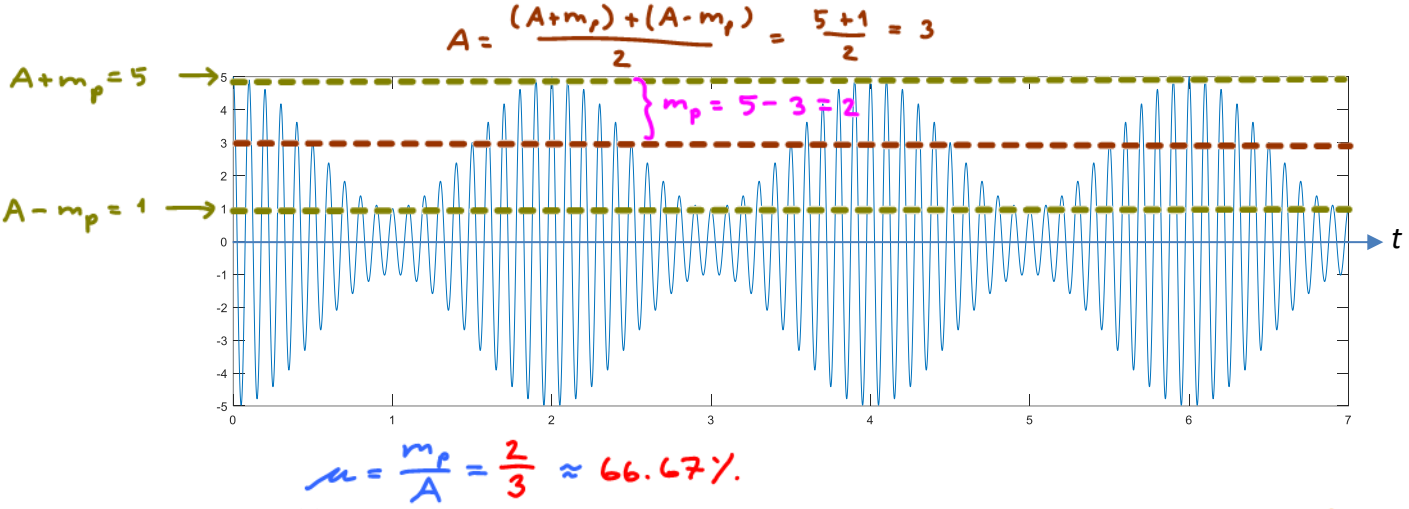
ECS 332: In-Class Exercise **Solution**

Instructions

1. Separate into groups of no more than three persons.
2. The group cannot be the same as your former group.
3. Only one submission is needed for each group.
4. ***Write down all the steps*** that you have done to obtain your answers. You may not get full credit even when your answer is correct without showing how you get your answer.
5. **Do not panic.**

Name	ID
Prapun	

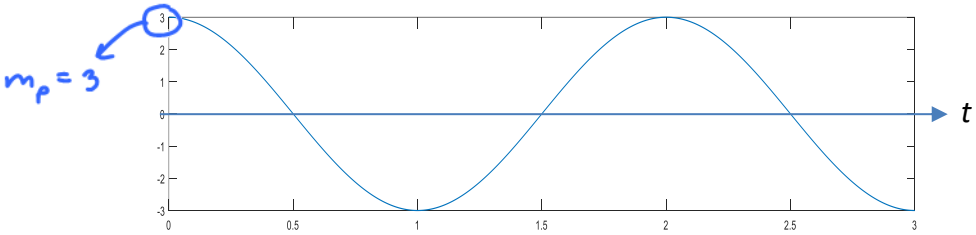
1. Find the modulation index used in the following transmitted AM signal $x_{\text{AM}}(t)$.



$\mu = \frac{m_p}{A} = \frac{2}{3} \approx 66.67\%$.

2. Suppose $m(t)$ is plotted below.

Note that this is the plot of $m(t)$ (not $x_{AM}(t)$)



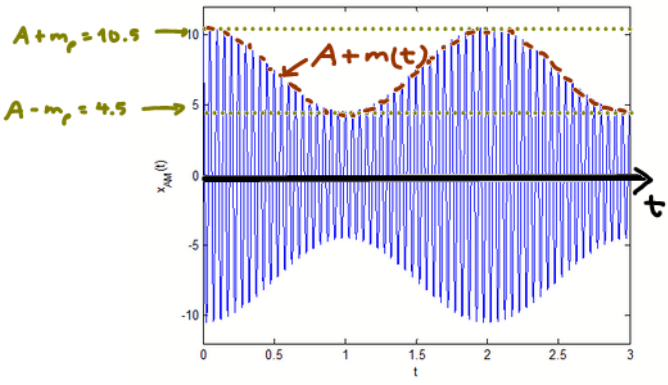
Assume that the carrier frequency f_c is large (enough).

Plot the transmitted AM signal $x_{\text{AM}}(t)$ for 0 < t < 3

(a) when the modulation index is 40%

$0.4 = \mu = \frac{m_p}{A} = \frac{3}{A}$

$A = \frac{3}{0.4} = \frac{3\times 10}{4} = \frac{15}{2} = 7.5$



(b) when the modulation index is 200%

$2 = \mu = \frac{m_p}{A} = \frac{3}{A}$

$A = \frac{3}{2} = 1.5$