

**Math 341 Homework # 7**

*Due Monday Oct. 28 in class.*

**Section 3.4** 1,4,11,14,19,23,26

**Section 3.6** # 1,3,6,12,17,32

**Graduate Problems: 3.6** # 27,30,31,33

If you choose to use the annihilator method to find the correct form of the guess for the method of undetermined coefficients you may find the following table handy:

**Table of Annihilators**

| forcing function $f(t)$                      | Annihilator  |
|--|--|
| constant                                     | $\mathcal{L}_2 = \frac{d}{dt}$                                   |
| $t^k$  | $\mathcal{L}_2 = \frac{d^{k+1}}{dt^{k+1}}$                       |
| $e^{at}$                                     | $\mathcal{L}_2 = \left(\frac{d}{dt} - a\right)$                  |
| $t^k e^{at}$                                 | $\mathcal{L}_2 = \left(\frac{d}{dt} - a\right)^{k+1}$            |
| $\cos(\omega t)$ or $\sin(\omega t)$         | $\mathcal{L}_2 = \left(\frac{d^2}{dt^2} + \omega^2\right)$       |
| $t^k \cos(\omega t)$ or $t^k \sin(\omega t)$ | $\mathcal{L}_2 = \left(\frac{d^2}{dt^2} + \omega^2\right)^{k+1}$ |