

No calculators

PRINT NAME

PERM NUMBER

TA: ☐ Trevor
☐ Nick**Time:** ☐ 4:30 ☐ 6:30
☐ 5:30 ☐ 7:30

1. What's the password? [Ask your TA]
2. In your own words, what does it mean for a differential equation to be linear? [You must write your own original thoughts in sentence form, do not copy from the textbook or your notes.]
3. Suppose you have a linear ordinary differential equation of order 2 given by

$$a(t)y'' + b(t)y' + d(t)y = 0$$

and you also have two functions y_1 and y_2 that are solutions to the differential equation. Show that $C_1y_1 + C_2y_2$ is also a solution. (C_1 and C_2 are constants.)