HW1

1) Given the following system.

$$a\dot{x}(t) = \sin(t)$$

where a is the last number of your student ID plus 1.

Is the system above a linear system? Prove your answer. Give a mathematical proof on a piece of paper that it does meet the superposiiton theorem.

2) Write a **MATLAB Simulink program** to show that the system below is a time-variant system. This has been demostrated during the class with a different system. Please, watch again the video lecture.

$$t^2\ddot{y}(t) + \dot{y}(t) = \frac{a}{\sqrt{t}}u(t) + \dot{u}(t)$$

where a is the last number of your student ID plus 1.

Please, submit a decent report. **Sub-decent submission will not receive a full grade.**