**MECE 441 Lab Exercise**

1. Find the step response of each of the transfer functions shown in below equations and compare them.



1. Open the SIMULINK model “lab\_first\_order\_system.slx”. Find the parameter “a” of the first order system.
	1. With the default parameter settings of simulink
	2. With the fixed step size of 1e-5
	3. With the fixed step size of 1e-6

Comment on the results.

1. Open the SIMULINK model “lab\_second\_order\_system.slx”. Find the transfer function of the given system.
	1. With the default parameter settings of simulink
	2. With the fixed step size of 1e-5.
	3. With the fixed step size of 1e-6.

Comment on the results.

1. Obtain a linearized model around the equilibrium point (uQ; yQ) = (-2; 0), by using MATLAB function *linmod*.

