To be familiar with the library/ function blocks in Simulink.

1) How to generate a model in Simulink;
2) How to specify the block parameters;
3) How to simulate and observe the system response;

1) How to generate a model in Simulink, be familiar with the Simulink library;

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[Image showing the MATLAB interface with a Simulink window open, with a note saying: click to open the Simulink window]
create a new model

brief explanation about the icon clicked
drag the icons you need into the model to insert a function, then connect them.

the main functions we used:

a. continuous: derivative, integrator, state-space system, transfer function, zero-pole;
b. math: Abs, gain, math function, matrix gain, product, sum, trigonometric function;
c. sinks: out, scope, display, xy graph, to workspace;
d. sources: signal generator, sine wave, step;

examples:

1. Check the dot to make sure well connected

double click the icon to specify the parameters for the block
Double click to specify the parameters for the input

view the waveform of the input
double click the Scope icon to view the figure of the output.
2. Try to simulate the system designed in example 11.4

\[
A = \begin{bmatrix}
0 & 1 & 0 \\
0 & -1 & 1 \\
0 & 0 & -5
\end{bmatrix}, \quad
B = \begin{bmatrix}
0 \\
0 \\
200
\end{bmatrix}, \quad
C = [1 \ 0 \ 0], \quad
D = [0];
\]

the state variable feedback \( u = [1.0 \ 0.35 \ 0.05]x \)
output y(t):
state variable \( x(t) \):