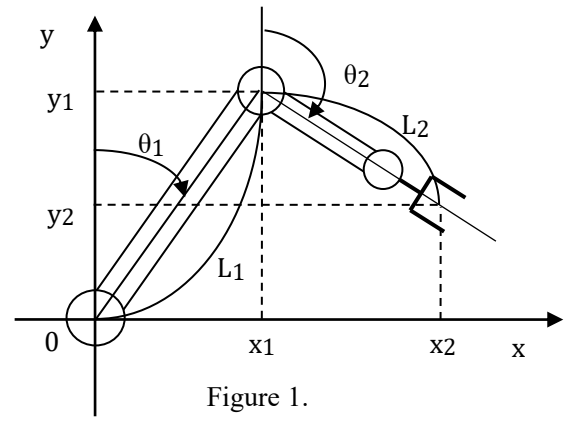


## Fundamental Mathematics for Robotics Homework Set #02, Dr.T

- [1] Find the location of the end-effector (EF)  $(x_2, y_2)$  of the two-link manipulator.
- Using the definitions of the coordinate frames and angles shown in Fig.1.
  - Similarly using Fig.2.
  - (Extra) Similarly using Fig.3. (Note that this is a three-link manipulator.)



- [2] Answer the following questions on the given graph in Fig.4 (you can use your own graph paper).
- Construct a first-order polynomial function that passes through both points A and B.
  - Construct a second-order polynomial function that passes through both points A and B.
  - Construct a third-order polynomial function that passes through both points A and B.
  - Construct two functions different from those in (a) through (c) that passes through both points A and B.

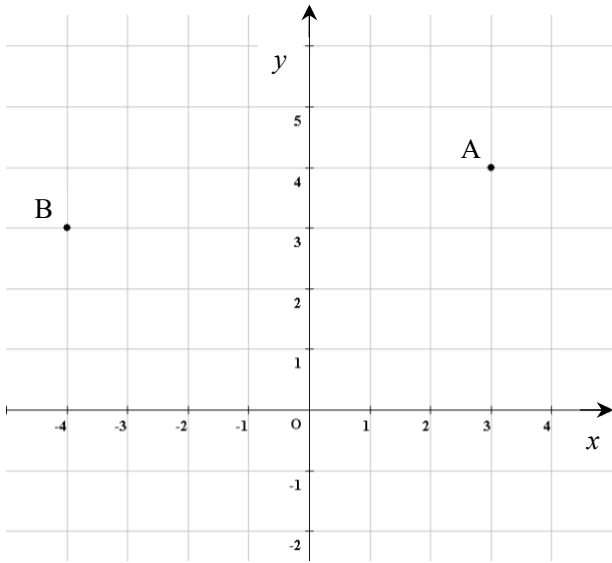
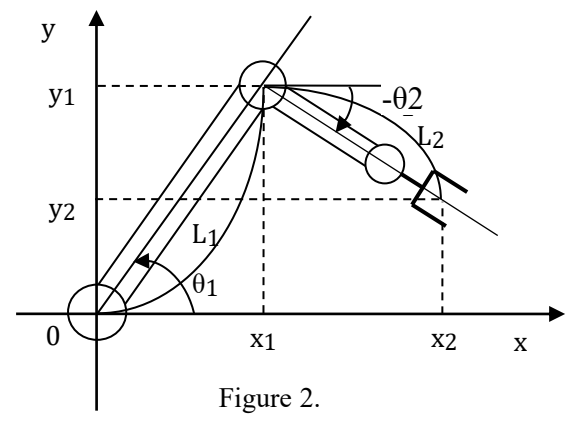


Figure 4.

