

Due: 11:59pm, September 18th, 2024

1. Draw the workspaces for the following planar robots:

(a) The PPR manipulator shown in Figure 1 with $d = 0.05\text{m}$, and joint motion ranges of $0.1\text{m} \leq a \leq 0.3\text{m}$, $-0.2\text{m} \leq b \leq 0.2\text{m}$ and $270^\circ \leq c \leq 360^\circ$.

(b) The PRR robot shown in Figure 2 with $b = 0.5\text{m}$, $e = 0.1\text{m}$, and joint motion ranges of $0.1\text{m} \leq a \leq 0.6\text{m}$, $-45^\circ \leq c \leq 90^\circ$ and $120^\circ \leq d \leq 240^\circ$.

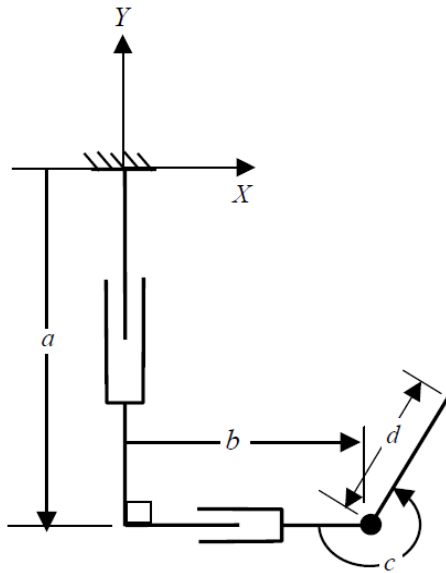


Figure 1. Planar PPR manipulator

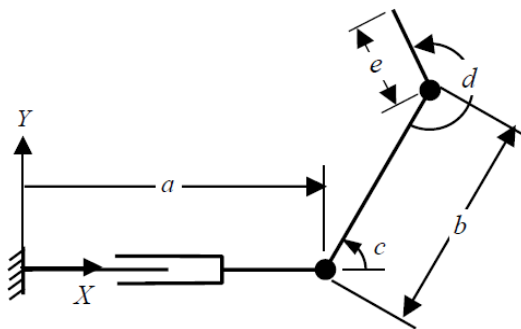


Figure 2. Planar PRR manipulator