Physics 304
Homework due 2 March 2016

5. Point P is represented in the \((x_1, x_2, x_3)\) coordinate system as 
\((x_1 = 2, x_2 = 1, x_3 = 3)\). Another coordinate system represents the same point as \(P(x_1', x_2', x_3')\). To transform the \((x_1, x_2, x_3)\) system into the \((x_1', x_2', x_3')\) system, \(x_2\) is rotated toward \(x_3\) around the \(x_1\) axis by an angle of \(60^\circ\) (see figure). Find the rotation matrix and the coordinates of P in the \((x_1', x_2', x_3')\) system.