1. Consider the linear program
\[
\min_{(x_1, x_2) \in P} x_1 + x_2, \quad P := \left\{ (x_1, x_2) \mid \begin{array}{l}
-2x_1 - x_2 \leq -8 \\
-6x_1 + x_2 \leq 2 \\
x_1 - 3x_2 \leq -3 \\
3x_1 - 2x_2 \leq 9
\end{array} \right\}
\] (1)

(a) Find the extreme points of the constraint set \( P \).
(b) Put this linear program in standard form.
(c) Using MATLAB, find the extreme points of the constraint set of the standard form linear program. Associate the extreme points of \( P \) with the extreme points of the standard form constraint region.
(d) For each of the extreme points of \( P \), determine whether or not the corresponding extreme point of the standard form constraint region is degenerate. Additionally, specify the set of feasible bases in the standard form linear program associated with every extreme point of \( P \).