

6.251/15.081J Recitation 2

1 Examples

Example 1.1. [1], exercise 2.4.

Example 1.2. [1], exercise 2.16.

Example 1.3. [1], exercise 2.10.

Example 1.4. The following statements refer to a nonempty polyhedron P in standard form. If true, prove. If false, provide a counterexample.

- (a) Every system with degenerate basic feasible solutions has redundant equality constraints.
- (b) Every system with redundant equality constraints has degenerate basic feasible solutions.
- (c) If $\mathbf{0} \in P$, then $\mathbf{0}$ is a BFS, and it is degenerate.
- (d) Every degenerate basic solution generated by the constraints forming P must also be feasible.
- (e) Same as (d), but P is a *bounded* polyhedron.

Example 1.5. [1], exercise 2.15.

Example 1.6. [1], exercise 2.14.

References

- [1] Bertsimas, D.; Tsitsiklis, J.N. *Introduction to Linear Optimization*. Athena Scientific, 1997.
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