

ASE7030 Convex optimization: Homework #1

- 1) *Degenerate quadratic function.* Consider the following quadratic function with $P \geq 0$.

$$f(x) = x^T P x + 2q^T x + r$$

- a) Find the condition on P and q that makes the above function bounded below.
- b) Now, suppose that the above condition holds. Parameterize all solutions that minimize $f(x)$.