

Problem 1. Let $f(x) = x^4 - 2x^2 - 8$; the polynomial $f(x)$ may be viewed as a quadratic function in x^2 . Find the following information about $f(x)$, and use this information to sketch its graph.

- (a) the y -intercept;
- (b) the real roots;
- (c) the first derivative and its roots;
- (d) the second derivative and its roots;
- (e) the local extreme points;
- (f) the inflection points.