

Matlab Tutorial: Plotting & Polynomials

- (1) Start with the polynomial $p(x) = x^5 - 7.4x^3 + 4.5x^2 + 4.6x + 0.6$
- (2) Find its first and second derivatives $p'(x)$ and $p''(x)$.
- (3) Determine the roots of all 3 polynomials: $p(x)$, $p'(x)$ and $p''(x)$
- (4) Create a plot of just $p(x)$ that includes:
 - (a) All relevant features of the original function
 - (b) A black x-axis
 - (c) Its roots and relative extrema highlighted with circles and squares
- (5) Create a plot of just $p'(x)$ with the same set of features.
- (6) Create a plot that includes:
 - (a) The function and all its features
 - (b) The first derivative and its features
 - (c) The second derivative and its roots
 - (d) Make sure that each function is clearly distinguishable
 - (e) Make sure that different sets of roots are clearly distinguishable
- (7) That's it!!!