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### Homework 1

1. Choose (or construct) a quadratic function with real roots

$$f(x) = (x+3)(x-4)$$

2. Find the roots by any means (e.g. quadratic formula)

$$x = -3 \text{ and } x = 4$$

3. Express the equation in the form  $f(x) = 0$

$$f(x) = x^2 - x - 12 = 0$$

4. Calculate the derivative  $f'(x)$

$$f'(x) = 2x - 1$$

5. Choose an initial guess  $x_0$  that does not satisfy the equation and for which  $f(x)$  is nonzero

$$x_0 = 5$$