1. (2 points) Use a linear approximation to estimate \( \tan(46^\circ) \).
   \((\text{Simplify your answer.})\)

2. (3 points) Find all of the minima and maxima of the polynomial \( f(x) = 2x^3 - 9x^2 + 12x \) on the interval \([0, 3]\), and label which ones are local minima/maxima and label which ones are global minima/maxima.
3.  (a) (3 points) State the mean value theorem.

(b) (2 points) Use the mean value theorem to prove that

\[ 5x + \cos x - 1 = 0 \]

has exactly one solution (namely \( x = 0 \)).