

7. (a) (4 points) Show that the point $(x, y) = (3, -6)$ lies on the curve defined by $y^2 - x^3 - x^2 = 0$.

(b) (4 points) What is the equation of the tangent line to the curve at the point $(3, -6)$?

(c) (2 points) Consider the function $f(x) = x\sqrt{x+1}$. What is the domain of f ?

(d) (6 points) Find all critical points, local maxima, and local minima of f . Which of the local maxima and minima are global maxima / minima? Show all work.