Problem 1

Determine the critical points of $f(x) = x^4 - 4x^3 + 4x^2$. Give intervals of increase/decrease.

Problem 2

Determine the critical points of $f(x) = x^{2/3}(x^2 - 4)$. Give intervals of increase/decrease.

Problem 3

Let $f(x) = 3x^2 - 4x^3$. First find the critical points, then find any local min/max values by using the first derivative test.

Problem 4

Determine any local min/max values for the function $f(x) = \frac{x^2-3}{x-2}$ by using the first derivative test. Note: $x = 2$ is not a critical point because 2 is not in the domain of $f(x)$.

Problem 5

Use the first derivative test on the function from problem 2 to determine any local min/max values.