Problem 1

Use linearization to approximate $\sqrt[3]{28}$ by a rational number.

Problem 2

Find the critical points and the absolute min and max of $f(x) = \frac{x^3}{3} - \frac{5}{2}x^2 + 6x$ on the interval $[1, 6]$.

Problem 3

Let $f(x) = \sin(2x)$. Find the critical points and absolute min and max of $f(x)$ on the interval $[0, \frac{2\pi}{3}]$. (you only need to give the critical points that lie within this interval)

Problem 4

Consider $f(x) = x\sqrt{8 - x^2}$. What is this function's domain (hint: it's a closed and bounded interval)? Give the absolute min and max for this function on it's domain.