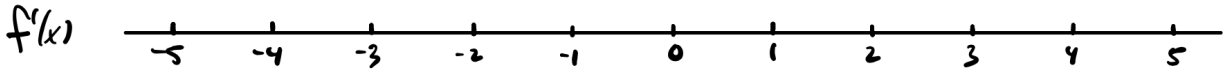
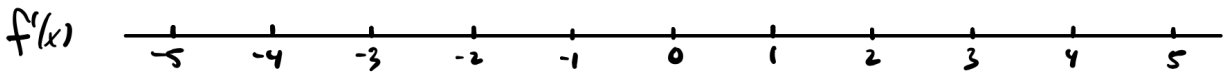
§4.3 (part 1): Monotonicity and the First Derivative Test

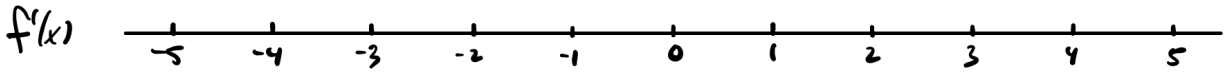
1.] Determine the intervals of monotonicity on for the function $f(x) = -4x^3 - 3x^2 + 18x + 10$.



2.] Determine the intervals of monotonicity on for the function $f(x) = x^2 e^{-\frac{x}{2}}$.



3.] Determine the intervals of monotonicity on for the function $f(x) = x^{2/3}(5 - x)$. Then use the First Derivative Test to determine the local extrema.



4.] Determine the intervals of monotonicity of the function $f(x) = 2x^5 - 5x^4 - 10x^3 + 4$. Use the First Derivative Test to locate the local extrema, and identify the absolute maximum and minimum values of the function on $[-2, 4]$.