6. Show that for any $I > 0$ there are at least two distinct solutions to the equation $\frac{1 + x}{2x^3} = (x)f(x)$.

2. Show that the function $\frac{1 + x}{2x^3} = (x)f(x)$ is uniformly continuous on $\mathbb{R}$.

4. Prove by definition that

\[ \lim_{x \to -\infty} \frac{1 - x}{3 + 2x} = \infty. \]

Then the sequence $x_n$ converges.

3. Prove that if the sequence $x_n$ exists for $n > 0$ and there exists $N \in \mathbb{N}$ such that

\[ \{0 < x_n \Rightarrow \frac{1 + x}{x} \} \text{ for } n \geq N. \]

2. Prove that

\[ I \supseteq u/1(u) \]

1. Prove by induction that

\[ n \geq 2 \text{ for } n \geq 4. \]

\[ \text{Name: } \]

\[ \text{MATH 693 - Practice Test} \]