

Name: _____

MA 2310 Quiz 3

Compute the following. No calculators.

1. $\lim_{x \rightarrow 1} \frac{x^3 - 1}{x + 1}$

2. $\lim_{x \rightarrow 1} \frac{x^2 - 2x + 1}{x^3 - 1}$

3. Define the function $f(x) = x^3$. For this function compute the following limit

$$\lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

4. For the function $f(x) = \frac{x^2 - 2x + 1}{x^3 - 1}$. State the domain of the function and the functions horizontal asymptotes.

5. $\lim_{x \rightarrow \infty} \frac{2x^2 - 2x + 1}{3x^3 - 1}$

6. $\lim_{x \rightarrow \infty} \frac{5x^3 - 1}{4x^2 - 2x + 1}$

7. $\lim_{x \rightarrow \infty} \frac{5x^3 - 1}{4x^3 - 2x + 1}$