

Quiz 22

Name: _____

Find the following limits.

1. $\lim_{x \rightarrow \infty} \frac{x^5 - 5x^2 + 1}{x^4 + x + 1}$
Take out the largest power of x :

$$\lim_{x \rightarrow \infty} \frac{x^5(1 - \frac{5}{x^3} + \frac{1}{x^5})}{x^4(1 + \frac{1}{x^3} + \frac{1}{x^4})} = \lim_{x \rightarrow \infty} \frac{x^1}{1} \frac{1}{1} = \infty.$$

2. $\lim_{x \rightarrow \infty} \frac{0.5}{1 - (0.5)^x}$

Since $(0.5)^x$ goes to 0 as $x \rightarrow \infty$, the resulting limit is $\frac{0.5}{1} = 0.5$.