Quiz 1 Solution

August 25, 2017

1. (2 points) Estimate $\lim_{x \to 1^-} \frac{x^2 - 2x + 1}{x^2 - 1}$ numerically, if it exists.

Solution:

Since we're looking for the limit from the left, we'll choose values slightly smaller than 1. Using a calculator, we get the following table:

X	.9	.99	.999	.9999	1
f(x)	-0.0526	-0.0050	0005	0001	undefined
From the table, we can see $\lim_{x\to 1^-} \frac{x^2 - 2x + 1}{x^2 - 1} = 0.$ Answer: 0					

2. (2 points) Simplify $e^{3x \ln(12)}$. Solution:

$$e^{3x \ln(12)} = e^{\ln(12^{3x})}$$
 (since $m \ln a = \ln a^m$)
= 12^{3x} (since $e^{\ln a} = a$)
= $(12^3)^x = 1728^x$

Answer: 12^{3x} or 1728^x

3. (1 point) State one interesting fact about yourself. **Answer:** Answers may vary.