MA 16010
Quiz 1 Solutions

8/24/2018

Avg 3.05

1. (2 pts) Fill in the table to find $\lim_{x\to 1} \frac{x^2-2x+1}{x-1}$.

Both sides are going to 0, so $\lim_{x\to 1} \frac{x^2-2x+1}{x-1} = 0$.

x	0.9	0.99	0.999	1	1.001	1.01	1.1
$\frac{x^2-2x+1}{x-1}$	-0.1	-0.01	-0.001	X	0.001	0.01	0.1

2. (2 pts) Simplify $e^{3\ln(2x)+1}$.

$$e^{3\ln(2x)+1} = e^{3\ln(2x)}e^1$$
$$= e^{\ln((2x)^3)}e^1$$
$$= (2x)^3 e^1$$
$$= \boxed{8x^3 e}$$

$a^{x+1} = a^x a^1$ rule of exponents

$3\ln(x) = \ln(x^3)$ rule of logarithms

$e^{\ln(x)} = x$ inverse functions

Can also do $\left(e^{\ln(2x)}\right)^3 e^1 = (2x)^3 e^1$.