Math 1513 - College Algebra
Quiz #19 - 2011.10.25
Solutions

1. The natural logarithm function, $\ln(x)$, is the inverse function to which exponential function?

The natural logarithm $\ln(x)$ is the inverse function to e^x.

2. The weight of an object on the moon varies directly with the weight of the object on Earth. A 96 kg object on Earth would weigh only 16 kg on the moon. How much would a fully suited 250 kg astronaut weigh on the moon?

First, we let M and E be the weights of objects on the moon and the Earth, respectively. This gives us the equation $M = kE$. To find the value of k, we use the first bit of information, that when $E = 96$, $M = 16$, yielding the equation $16 = 96k$. Solving for k gives $k = \frac{1}{6}$. So our variational equation is $M = \frac{1}{6}E$. We now plug in $E = 250$ to get $M = \frac{250}{6}$ kg.