Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Problem Set 5.5***

**1) Write each equation in exponential form.**

a) log264 = 6 b) $log\_{4}\left(\frac{1}{64}\right)= -3$ c) log(0.01) = -2

**2) Write each equation in logarithmic form.**

a) 25 = 32 b) $5^{-^{1}/\_{2}}=\frac{\sqrt{5}}{5}$ c) 10-1 = 0.1

**3) Evaluate the logarithmic expression.**

a) log28 b) log6216 c) log77

d) log5$\sqrt{5}$e) $log\_{7}\left(\frac{1}{49}\right)$ f) ln(1)

**4) Solve for x.**

a) log6x = 2 b) log16x = -1 c) logx64 = 3

**5) Expand the expression using the properties of logarithms.**

a) log6(3x) b) $ln\left(\frac{r}{6}\right)$

c) log(xy4) d) $log\_{2}\left(\frac{x^{5}y}{3}\right)$

**6) Condense the expression using the properties of logarithms.**

a) $log\_{3}7-log\_{3}x$ b) 2$log\_{8}x+log\_{8}6$

c) 3$log\_{4}2+log\_{4}6-2log\_{4}3$ d) ln(5) + ln(x) – ln(y)

**7) Condense the left side of the equation. Then solve for x.**

a) $log\_{2}\left(6\right)+log\_{2}\left(x\right)=6$ b) $log\_{5}\left(2\right)+log\_{5}(x)-log\_{5}\left(3\right)=2$