Logarithmic & Exponential Equations

While working in a group make sure you:

- Expect to make mistakes but be sure to reflect/learn from them!
- Are civil and are aware of your impact on others.
- Assume and engage with the strongest argument while assuming best intent.

This is a bit of a reminder of §3.1-3.3 but it will also prime you for §3.4!

1. Find the value t in the following by writing logarithmic equations as exponential equations or vice versa.

   (a) $18 = e^{-.05t}$

   (b) $\log_2(t+2) = 5$

   (c) $\log(10^4) = t$

2. Write the expressions as a single logarithm or a single exponent:

   $4^{5x} \cdot 16^{x^3}$

   $\log(x-16) + \log(x-1)$

3. Find all x that satisfy:

(a) $2000e^{.05x} = 10,000$

(b) $\log(x-16) = 2 - \log(x-1)$

(c) $2\ln(-x) = \ln(36)$

(d) $\dfrac{10}{1+e^{-x}} = 2$

(e) $7^{\frac{x}{3}\ln 5} = 9$

(f) $\log_2(\log_3(x)) = 4$