Key Concept 3 Review (Exponential & Log Functions) Name:_____

Non-Calculator

1) Evaluate: $-7\log 10^3 - 3$

2) Evaluate: $\log_{17} 17^{\frac{9}{14}}$

3) Solve for m: $\log_{\frac{1}{5}}\left(\sqrt[3]{25}\right)^5 = m$

4) Solve for q: $\frac{1}{16} = 2^{q-3}$

5) Condense the expression: $2\,[5\log(x+2) + \log x] - \log(x+4)$

6) Condense: $2\log_3 y + \log_3 z - \frac{1}{3}\log_3 x$

7) Solve for w: $\log_5(2w-3) = 2$

8) Solve for x: $\ln 15 - \ln x = \ln 3$

9) Solve for a: $-4 = \log_a \frac{1}{16}$

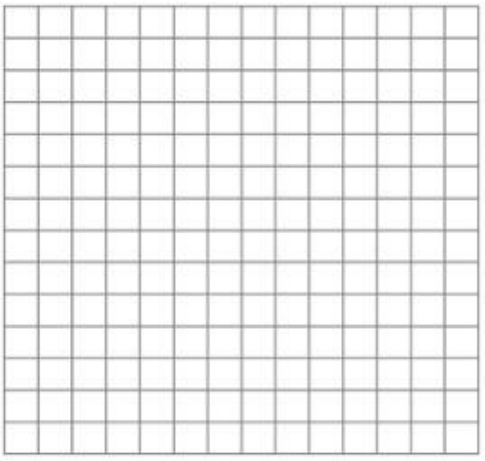
10) Solve: $\frac{e^x - 4e^{-x}}{3} = 1$

11) Solve: $\log(x-6)^2 = 4$

12) Find the domain, range, x & $y-$ intercept, and asymptote(s) of:

$$f(x) = -1 + \log_5(x+3)$$

Graph the function and label all parts.



Calculator

13) Solve for x: $\ln(x+4) + \ln(x-3) = 2\ln 3$

14) Find the domain & range of: $f(x) = e^x + 7$

15) Identify the domain, range, x & y-intercept, and asympotote(s) for:
$f(x) = 3^{x+2} - 1$

16) The number of bacteria in a petri dish after t hours is
$B = 100e^{kt}$, where $t = 0$ represents the time at 12 pm. At 6 am, the number of bacteria was 42.

a) Find k.
b) Using k, find the number of bacteria at 8 pm.

17) The population of Wellsville can be represented by $P = 1500e^{kt}$, where $t = 0$ is 2010. In 1990, the population was 1400. Find k and use this to predict the population in 2020.

18) You invest \$1300 at Peter Venkman's savings and take a loan at 8% interest compounded continuously. How long will it take for the balance to double?