## Logs...let's build a cabin!

$$a = \log_b c_{\text{means}}$$

Solve for p. (Round to 3 decimal places).

1. 
$$84^p = 70$$

4. 
$$\log_2(10+3p) = 5$$

2. 
$$\log_5 p = 4$$

5. 
$$\log_8(p+1) - \log_8 p = 2$$

3. 
$$\log_{p} 35 = 3$$

6. 
$$\log_5(5x) = 2 + \log_5(x - 4)$$

$$64 = 9 = 100 = 5$$

$$64 = 9 = 100 = 5$$

$$64 = 9 = 100$$

$$64 = 9 = 100$$

$$8. \log(3p+1) - \log(p-2) = 1$$

7. 
$$\log(p+3) + \log(p-3) = \log(16)$$

$$|b-p^{2}-9| - 25=0$$

$$(\rho+5)(\rho-5)=0$$

$$0. 5^{(4p-7)}=125$$

$$10. 3^{7p}=\frac{1}{27}$$

$$11. \ln(\ln p)=2$$

$$9 \quad 5^{(4p-7)} = 125$$

12. 
$$\log_3(\log_4 p) = 0$$

8. 
$$\log(3p+1) - \log(p-2) = 1$$

10. 
$$3^{7p} = \frac{1}{27}$$

13. 
$$\log_8 p + \log_8 (p+12) = 2$$

$$\rho^2 + 12p - 64 = 0$$
  
 $(p+16)(p-4) = 0$ 

$$64 = P^2 + 12P$$
  $p = -16ert$   
 $P^2 + 12P - 64 = 0$   $p = 4$   
 $O + 16 (0 - 4) = 0$ 

$$e^{2} = l_{n}P$$
 $e^{2} = l_{n}P$ 
 $p \approx 1618.178$ 

170: 10 mare in tail to us w/o new OS for TI-84 Plus

Simplify the following. Then, evaluate the expression. (Round to 3 decimal places).

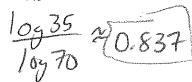
14. 
$$3\log_3 4 - (\log_3 6 + \log_3 4)$$

15. 
$$-2\log_5 40 + \log_5 100 - \log_5 10$$

$$log_5 \frac{40^2 \cdot 100}{10} = log_5 \frac{1}{160}$$

16. Why do we need to use the change of base formula?

Evaluate the following to 3 decimal places. Show what you punched into the calculator:



20. Population Growth of the Virgin Islands.

The population of the U.S. Virgin Islands has a growth rate of 2.6% per year. In 1990, the population was 512,000. The land area of the Virgin Islands is 3,097,600 square yards. Assuming this growth continues and is exponential, after how long will there be one person for every square yard of land?

$$\log_{1.026} 6.05 = t = \frac{\log 6.05}{\log 1.026} \times 70.134$$

- 21. America is eating less beef. The average consumption of beef is decreasing exponentially by approximately 1.6% per year. In 1985, the average annual consumption was about 80 lb. per person.
  - a). Write an equation to show how the consumption has changed since then.