

February 22, 2012

Alg2

(short class so no correcting)

Get out your notes...



2/22 - Solving Equations with Logs and Exponentials

$$\log_5 4 - \log_5 x = 1$$

$$\log_5 \frac{4}{x} = 1$$

$$x \cdot 5^1 = \frac{4}{\cancel{x}} \rightarrow *$$

$$5x = 4$$

$$x = \frac{4}{5}$$

$$\log_8 (x + 5) - \log_8 x = 1$$

$$\log_8 \frac{x+5}{x} = 1$$

$$x \cdot 8^1 = \frac{x+5}{x} \rightarrow *$$

$$8x = x + 5$$

$$\begin{array}{r} -x \\ -x \end{array}$$

$$7x = 5$$

$$x = \frac{5}{7}$$

$$\log_5(-5x) - \log_5 4 = 3$$

$$\log_5 \frac{-5x}{4} = 3$$

$$5^3 = \frac{-5x}{4}$$

$$\therefore 125 = \frac{-5x}{4} \cdot 4$$

$$500 = -5x$$

$$\boxed{-100 = x}$$

$$\log_5 4 + \log_5 (x+3) = \log_5 34$$

$$\log_5 4(x+3) = \log_5 34$$

$$4(x+3) = 34$$

$$4x + 12 = 34$$
$$\begin{array}{r} -12 \\ -12 \end{array}$$

$$\frac{4x}{4} = \frac{22}{4}$$

$$\boxed{x = \frac{11}{2}}$$

$$\log_9 (3x + 3) + \log_9 3 = 3 \quad \log_5 10 - \log_5 (8 - 2x) = 1$$

$$6^n + 5 = 66$$

$$6^n = 61$$

$$\log_6 61 = n$$

$$\frac{-3 \cdot 10^x}{-3} = \frac{-42}{-3}$$

$$10^x = 14$$

$$\log_{10} 14 = x$$

$$5^{-10a} - 8 = -2$$

$$+8 \quad +8$$

$$5^{-10a} = 6$$

$$\frac{\log_5 6 = -10a}{-10} \quad \frac{-10a}{-10}$$

$$-\frac{1}{10} \log_5 6 = a$$

$$\frac{-4 \cdot 13^{n+6} = -16}{-4} \quad \frac{-16}{-4}$$

$$13^{n+6} = 4$$

$$\log_{13} 4 = n+6$$

$$-6$$

$$\boxed{-6 + \log_{13} 4 = n}$$

$$\log_{13} 4 - 6 = n$$

Homework

Buff *Logarithms WS4*

Due **Thursday**
