Day 2 on 10-2

VII. Properties of logs.

EX 8. $\log_6 6^8 = y$ $\quad 6^y = 6^8$ $\quad y = 8$

EX 9. $3^{\log_3(4x-1)} = y$ $\quad 3^{\log_3(4x-1)}$ $\quad \log_3 y = \log_3(4x-1)$ $\quad y = 4x-1$

VIII. Solving log equations.

EX 10. $\log_8 n = (4/3)$ $\quad 8^{(4/3)} = n = 16$

EX 11. $\log_5(p^2-2) = \log_5 p$ $\quad p^2-2 = p$

$p^2 - p - 2 = 0$

$(p-2)(p+1) = 0$

$p-2=0$ $\quad p=2$

$p+1=0$ $\quad p=-1$

Can't take the log of a (-) # !

D: $x>0$

EX 12. $\log_4 x^2 = \log_4(4x-3)$.

$x^2 = 4x-3$

$x^2 - 4x + 3 = 0$

$(x-3)(x-1) = 0$

$x = 3, 1$ * Both Check!

IX. Solving inequalities.

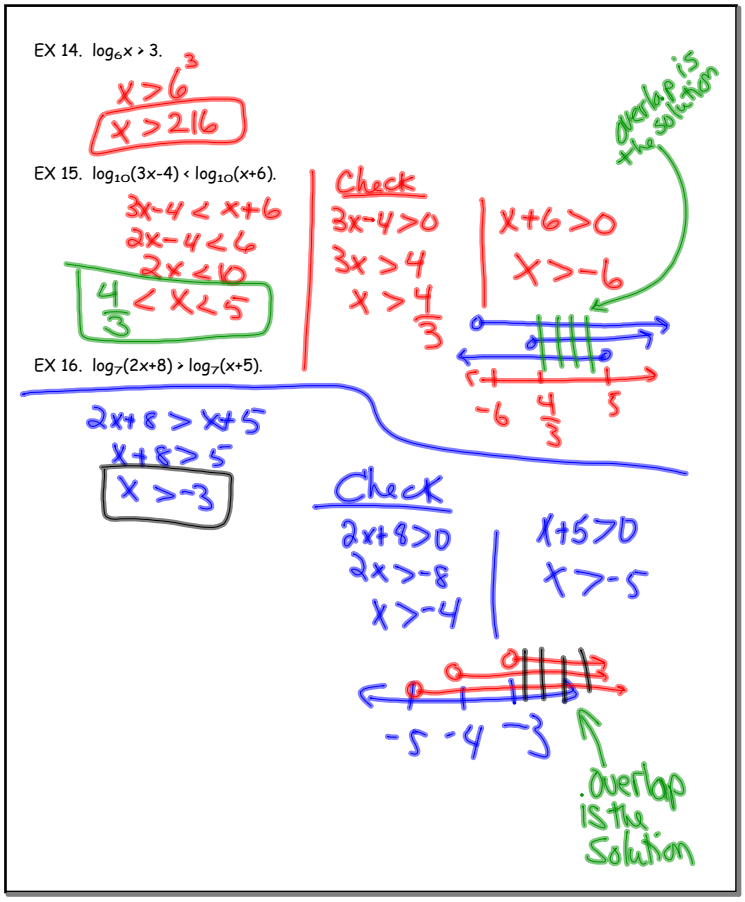
If $b>1$, $x>0$, and $\log_b x > y$, then $x > b^y$.

If $b>1$, $x>0$, and $\log_b x < y$, then $0 < x < b^y$.

EX 13. $\log_5 x < 2$.

$x < 5^2$

$0 < x < 25$


EX 14. $\log_6 x > 3$.
$x > 6^3$
$x > 216$
EX 15. $\log_{10}(3x-4) < \log_{10}(x+6)$.
$3x-4 < x+6$
$2x-4 < 6$
$2x < 10$
$\frac{4}{3} < x < 5$
Check
$3x-4 > 0$
$3x > 4$
$x > \frac{4}{3}$
$x+6 > 0$
$x > -6$
overlap is the solution
-6 $\frac{4}{3}$ 5
EX 16. $\log_7(2x+8) > \log_7(x+5)$.
$2x+8 > x+5$
$x+8 > 5$
$x > -3$
Check
$2x+8 > 0$
$2x > -8$
$x > -4$
$x+5 > 0$
$x > -5$
-5 -4 -3
overlap is the Solution