Change of Base Exponential Equations & Inequalities Name: _____

1) $5^{3x+7} = 25^{x-4}$

2) $36^{7x+1} = 216^{3x-2}$

3) $\left(\frac{1}{16}\right)^{3x+5} = \left(\frac{1}{64}\right)^{x+4}$

4) $81^{3-x} = \left(\frac{1}{3}\right)^{5x-6}$

5) $7^{3x+4} < 49^{2x+1}$

6) $16^{2x-5} \geq 64^{2x-3}$

7) $2^x \cdot \frac{1}{32} = 32$

8) $10^{-3x} \cdot 10^x = \frac{1}{10}$

9) $16^{2x-3} \cdot 4^{-2x} < 2^4$

10) $8^{x-1} \leq \left(\frac{1}{2}\right)^{2x-1}$