Log Worksheet Names _____

I. For problem $2^{4x + 6} = 3^{6x - 3}$, students in the past have done the first step correctly to get: $2^{4x + 6} - 3^{6x - 3} = 0$ The following students tried solving the problem as shown below

Joe Jock: copied someone elses paper to get: $\log\left(2^{4x + 6} - 3^{6x - 3}\right) = \log 0$

a) Is this a legal step? (yes or no) no b) If no, explain what is wrong with this step:

can not take the log of 0

Pam Pom: half asleep at 5:30 A.M. before practice, did the second step correctly to get $2^{4x + 6} = 3^{6x - 3}$ then did a correct third step to get $\log 2^{4x + 6} = \log 3^{6x - 3}$ then did a fourth step to get $\log 2^{4x + 6} - \log 3^{6x - 3} = 0$

She then tried using the quotient property of logarithms to get $\frac{2^{4x+6}}{3^{6x-3}} = 0$

a) Is this a legal step? (yes or no)) no b) If no, explain what is wrong with her use of this property:

According to quotient property of logarithms it should be $\log \frac{2^{4x+6}}{3^{6x-3}} = 0$

Bill & Betty Burnout: across the street, did the first four steps correctly to get $(4x + 6) \log 2 - (6x - 3) \log 3 = 0$

Now they tried using the quotient property of logarithms: $\frac{(4x+6)}{(6x-3)} \log \left(\frac{2}{3}\right) = 0$

a) Is this a legal step? (yes or no) no b) If no, explain what is wrong with their use of this property:

see above

II. Students in the past have taken: $\log_{0.01}(x - 2) + \log x = 1$ and did:

Brent & Brenda Bandgeeks: at band camp, tried using the quotient property of logarithms: $\frac{\log_{0.01} x}{\log_{0.01} 2} + \log x = 1$

a) Is this a legal step? (yes or no) no b) If no, explain what is wrong with their use of this property:

no such property; misapplication of the quotient property of logarithms

Paul & Patty Preps: while admiring each others Ambercrombie clothes, took $\log_{0.01} (x - 2) + \log x = 1$

and tried using the quotient property of logarithms: $\log_{0.01}\left(\frac{x}{2}\right) + \log x = 1$

a) Is this a legal step? (yes or no) no b) If no, explain what is wrong with their use of this property:

no such property; misapplication of the quotient property of logarithms

Sam & Sally Skater: in the back area, took $\log_{0.01} (x - 2) + \log x = 1$ and did: $\log_{0.01} x - \log_{0.01} 2 + \log x = 1$

a) Is this a legal step? (yes or no) no b) If no, explain what is wrong with their use of this property:

can not distribute a log function