

SM3 HW# 5-6 (solve radical, exp, log equations)

Date _____ Period _____

Solve each equation. (Hint: change all the exponentials to the same base using substitution)

1) $16^{-3n+2} = 4^{3n}$

2) $4^{2k} \cdot 4^{-2k-2} = 4^2$

3) $5^{-3n} = 5^{3n-2}$

4) $9^{1-a} = 81^{-a+1}$

Solve each equation. Round your answers to the nearest ten-thousandth. (Isolate the exponential, "undo" the exponential)

5) $4.5 \cdot 20^{-6r} = 93$

6) $-18^{x+7} = -74$

7) $10^{0.5-7k} + 2 = 58$

8) $20^{0.7a-8} - 1 = 64.5$

Solve each equation.

9) $\log_{14}(-n^2 + 9n) = \log_{14}(10 - 2n^2)$

10) $\log_{19}(x^2 - x) = \log_{19}(70 + 2x)$

Solve each equation. (Hint: these require you to "condense the log" THEN undo the log.)

11) $\log_8 x - \log_8 2 = 1$

12) $\log_7 (x + 6) + \log_7 x = 1$

13) $\log_9 (x - 4) - \log_9 x = 3$

14) $\log_4 x^2 - \log_4 8 = \log_4 18$

Solve each equation.

15) $\log_2 3^{x+4} = 2$

16) $3 \log_6 3^{x^2+2} = 12$

17) $-\log_9 3^{x+4} = -5$

18) $\log_9 18^{x-2} = -3$

Find the inverse of each function.

19) $y = \log_3 5^x$

20) $y = -2 \log_x 3$