

## SM3-A HW# 8-4 (practice solving equations)

Date \_\_\_\_\_ Period \_\_\_\_\_

**Solve each equation. Remember to check for extraneous solutions.**

1)  $b - 1 = \sqrt{b - 1}$

2)  $r = \sqrt{-20 + 9r}$

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

3)  $\frac{1}{81} \cdot 3^{-3x-1} = 3^4$

4)  $243^x = 81$

5)  $6^{3-3n} \cdot 6^{1-n} = 36$

6)  $36 \cdot 6^{2r+2} = 6^{-r}$

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

7)  $18^{2k} + 9 = 11$

8)  $-1.8 \cdot 5^{2x} = -45$

9)  $18^{4k+3} + 6 = 40$

10)  $16^{1-5x} + 8 = 69$

**Solve each equation.**

11)  $\log_8 (-13x + 2) = \log_8 (x^2 + 44)$

12)  $\log 3r^2 = \log (1 + 2r^2)$

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

13)  $\log_4 x - \log_4 (x - 5) = 2$

14)  $\log_2 7 - \log_2 x = 3$

15)  $\log_8 x + \log_8 7 = 2$

16)  $\log_4 x + \log_4 (x + 12) = 3$

**Find the inverse of each function.**

17)  $y = \log_6 x - 9$

**Solve each equation. (Hint: remember the "log of a power property".)**

18)  $\log_6 -x + \log_6 3 = \log_6 54$

19)  $\log_3 -4x + \log_3 7 = 3$