

## SM3-A HW# 8-3 (solve radical, exp, log equations) Date \_\_\_\_\_ Period \_\_\_\_\_

Solve each equation. Remember to check for extraneous solutions.

1)  $\sqrt{-15 + 8n} = n$

2)  $x - 7 = \sqrt{13 - 2x}$

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

3)  $32^{-b} = \frac{1}{4}$

4)  $36^{-3n} = 216$

5)  $8^{-2p} = 64$

6)  $36^{3-3v} = 6^3$

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

7)  $9^{-k} + 9 = 68$

8)  $-18^{x+7} = -74$

9)  $20^{-3p-5} + 3 = 91$

10)  $20^{2r-2} - 6.8 = 58.3$

**Solve each equation.**

$$11) \log_{16} (r^2 + 27) = \log_{16} (-10r + 2)$$

$$12) \log_{16} (2 + n^2) = \log_{16} (2n^2 - n)$$

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

$$13) \log_3 x - \log_3 4 = 2$$

$$14) \log_7 (x + 6) + \log_7 x = 1$$

$$15) \log_9 (x - 4) - \log_9 x = 3$$

$$16) \log_8 x + \log_8 4 = 2$$

**Find the inverse of each function.**

$$17) y = \log_3 x + 10$$

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

$$18) -\log_9 3^{x+4} = -5$$

$$19) \log_9 18^{x-2} = -3$$