

**SOLVING EXPONENTIAL EQUATIONS**

Directions: Solve each equation. Round your final answer to the nearest ten-thousandth.

1.)  $3^b = 17$

2.)  $12^r = 13$

3.)  $3^a = 69$

4.)  $6^r = 51$

5.)  $5(18)^{6x} = 26$

6.)  $e^{x-1} - 5 = 5$

7.)  $9^{n+10} + 3 = 81$

8.)  $11^{n-8} - 5 = 54$

9.)  $16^{n-7} + 5 = 24$

10.)  $20^{-6n} + 6 = 55$

$$11.) 5(6)^{3m} = 20$$

$$12.) 8^{-5a} - 5 = 53$$

$$13.) e^x = e^{x^2-2}$$

$$14.) e^{2x} = e^{x^2-8}$$

$$15.) -3e^{7a+9} + 6 = -6$$

$$16.) -3e^{9x-1} + 6 = -58$$

$$17.) 6e^{-4k-10} - 4 = 63$$

$$18.) 6e^{5x-6} - 4 = 50$$

CHALLENGE: Solve each equation. Round your final answer to the nearest ten-thousandth.

$$19.) e^{2x} - 4e^x - 5$$

$$20.) e^{2x} - 5e^x + 6$$

$$21.) 4^{x-3} = 7^{2x+5}$$

$$22.) 10^{4x} = 3^{x+2}$$