

NAME:

## Test 21 (Lessons 41–42): Common and Natural Logs

Approximate the value to four decimal places.

1)  $e^{-4} + \ln 2$

2)  $\frac{6}{2 \log 8}$

Write the expression with a common log using the Change of Base Rule.

3)  $\log_m (11)^2$

4)  $\log_{27} M$

5) Write the equation  $e^{4x} = 126$  as a natural log. Do not solve.

Solve using common logarithms.

6)  $5^x = 21$

7)  $8^{(2x+1)} = 15$

8) Write  $\log 135$  in terms of  $X$  and  $Y$  when  $\log 5 = X$  and  $\log 3 = Y$ .

**Evaluate.**

9)  $e^{\ln 9 + \ln 0.5}$

10)  $(\ln e^4)^{-1}$

**Solve using natural logarithms.**

11)  $4^{x+5} = 1$

12)  $\frac{1}{2} \ln(x + 3) = \ln 5$