11-5

NAME _____ DATE _____ PERIOD _____

Practice

Common Logarithms

Given that log 3 = 0.4771, log 5 = 0.6990, and log 9 = 0.9542, evaluate each logarithm.

1. log 300,000
5.4771

2. log 0.0005
−3.3010

3. log 9000
3.9542

4. log 27
1.4313

5. log 75
1.8751

6. log 81
1.9084

Evaluate each expression.

7. log 66.3
1.8215

8. $\log \frac{17^4}{5}$
4.2228

9. $\log 7(4^3)$
2.6513

Find the value of each logarithm using the change of base formula.

10. $\log_6 832$
3.7526

11. $\log_{11} 47$
1.6056

12. $\log_3 9$
2

Solve each equation or inequality.

13. $8^x = 10$
1.1073

14. $2.4^x \leq 20$
$x \leq 3.4219$

15. $1.8^{x-5} = 19.8$
10.0795

16. $3^{5x} = 85$
0.8088

17. $4^{2x} > 25$
$x > 1.1610$

18. $3^{2x-2} = 2^x$
1.4608

19. ***Seismology*** The intensity of a shock wave from an earthquake is given by the formula $R = \log_{10} \frac{I}{I_0}$, where R is the magnitude, I is a measure of wave energy, and $I_0 = 1$. Find the intensity per unit of area for the following earthquakes.

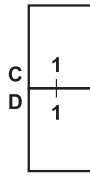
a. Northridge, California, in 1994, $R = 6.7$
about 5,011,872

b. Hector Mine, California, in 1999, $R = 7.1$
about 12,589,254

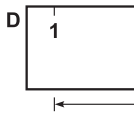
11-5

The Slic

Before the in
often perfor
logarithms.
Each of the s



To multiply
shown below
slide rule ad
the logarithm



1-2 See s

Follow the s

1. Use graph
squares to
right, plot
whole nun
heavy dot

2. You will n
5-by-7 ind
will work
in Exercis
a logarithm
strips. Th
being drav

3. Explain h
8 by 2. L
scale w
scale.
numbe
the 1 o