Name : _____ Score : _____

Teacher : _____ Date : _____

The Meaning of Logarithms

Rewrite each in exponential form.

1) $\log_{196} 14 = \frac{1}{2}$

2) $\log 1000 = 3$

3) $\log_s m = 4$

4) $\log_2 \frac{1}{32} = -5$

5) $\log_q n = 2$

6) $\log_2 8 = 3$

Rewrite each in logarithmic form.

7) $n^w = \frac{3}{5}$

8) $243^{\frac{1}{5}} = 3$

9) $w^g = \frac{7}{23}$

10) $10^{-3} = \frac{1}{1000}$

11) $3^4 = 81$

12) $243^{\frac{1}{5}} = 3$

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The Meaning of Logarithms

Evaluate each expression.

1) $\log_{49} 7$

2) $\log \frac{1}{1000}$

3) $\log_{4} \frac{1}{256}$

4) $\log_{3} \frac{1}{243}$

5) $\log_{12} 144$

6) $\log_{216} 6$

7) $\log_{2} 16$

8) $\log_{2} \frac{1}{32}$

9) $\log_{11} 121$

10) $\log_{4} 64$

11) $\log_{16} 2$

12) $\log_{32} 2$

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The Meaning of Logarithms

Rewrite each in exponential form.

1) $\log_{196} 14 = \frac{1}{2}$

$196^{\frac{1}{2}} = 14$

2) $\log 1000 = 3$

$10^{3} = 1000$

3) $\log_{s} m = 4$

$s^{4} = m$

4) $\log_{2} \frac{1}{32} = -5$

$2^{-5} = \frac{1}{32}$

5) $\log_{q} n = 2$

$q^{2} = n$

6) $\log_{2} 8 = 3$

$2^{3} = 8$

Rewrite each in logarithmic form.

7) $n^{w} = \frac{3}{5}$

$\log_{n} \frac{3}{5} = w$

8) $243^{\frac{1}{5}} = 3$

$\log_{243} 3 = \frac{1}{5}$

9) $w^{g} = \frac{7}{23}$

$\log_{w} \frac{7}{23} = g$

10) $10^{-3} = \frac{1}{1000}$

$\log \frac{1}{1000} = -3$

11) $3^{4} = 81$

$\log_{3} 81 = 4$

12) $243^{\frac{1}{5}} = 3$

$\log_{243} 3 = \frac{1}{5}$

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The Meaning of Logarithms

Evaluate each expression.

1) $\log_{49} 7$

$\frac{1}{2}$

2) $\log \frac{1}{1000}$

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3) $\log_4 \frac{1}{256}$

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$\frac{1}{4}$

12) $\log_{32} 2$

$\frac{1}{5}$