Kuta Software - Infinite Algebra 2

Name DAY 1 HW

The Meaning Of Logarithms

Date _____ Period ____

Rewrite each equation in exponential form.

1) $\log_6 36 = 2$

$6^2 = 36$

2) $\log_{289} 17 = \frac{1}{2}$

$289^{\frac{1}{2}} = 17$

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

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

4) $\log_3 81 = 4$

$3^4 = 81$

Rewrite each equation in logarithmic form.

5) $64^{\frac{1}{2}} = 8$

$\log_{64} 8 = \frac{1}{2}$

6) $12^2 = 144$

$\log_{12} 144 = 2$

7) $9^{-2} = \frac{1}{81}$

$\log_9 \frac{1}{81} = -2$

8) $\left(\frac{1}{12}\right)^2 = \frac{1}{144}$

$\log_{\frac{1}{12}} \frac{1}{144} = 2$

Rewrite each equation in exponential form.

9) $\log_u \frac{15}{16} = v$

$u^v = \frac{15}{16}$

10) $\log_v u = 4$

$v^4 = u$

11) $\log_{\frac{7}{4}} x = y$

$\left(\frac{7}{4}\right)^y = x$

12) $\log_2 v = u$

$2^u = v$

13) $\log_u v = -16$

$u^{-16} = v$

14) $\log_y x = -8$

$y^{-8} = x$

Rewrite each equation in logarithmic form.

15) $u^{-14} = v$

$\log_u v = -14$

16) $8^b = a$

$\log_8 a = b$

17) $\left(\frac{1}{5}\right)^x = y$

$\log_{\frac{1}{5}} y = x$

18) $6^y = x$

$\log_6 x = y$

19) $9^y = x$

$\log_9 x = y$

20) $b^a = 123$

$\log_b 123 = a$

Evaluate each expression.

21) $\log_4 64$ $=x$ $4^x = 64$ $4^x = 4^3$ $x = 3$

3

22) $\log_6 216$

3

23) $\log_4 16$

2

24) $\log_3 \frac{1}{243}$

−5

25) $\log_5 125$

3

26) $\log_2 4$

2

27) $\log_{343} 7$ $=x$ $343^x = 7$, $(7^3)^x = 7^1$ $3x = 1$ $x = \frac{1}{3}$

$\frac{1}{3}$

28) $\log_2 16$

4

29) $\log_{64} 4$

$\frac{1}{3}$

30) $\log_6 \frac{1}{216}$

−3

Simplify each expression.

31) $12^{\log_{12} 144}$

144

32) $5^{\log_5 17}$

17

33) $x^{\log_x 72}$

72

34) $9^{\log_3 20}$

400