

Math 1215 Hw 12

Name: _____

Key

Write each exponential equation in logarithmic form.

1. $3^7 = 2187$

$\log_3 2187 = 7$

2. $12^2 = 144$

$\log_{12} 144 = 2$

3. $5^3 = 125$

$\log_5 125 = 3$

Write each logarithmic equation in exponential form.

4. $\log_{10} 100,000 = 5$

$10^5 = 100,000$

5. $\log_4 1024 = 5$

$4^5 = 1024$

6. $\log_9 729 = 3$

$9^3 = 729$

Evaluate by using mental math.

7. $\log 1,000,000$

6

8. $\log 10$

1

9. $\log 1$

0

10. $\log_4 16$

2

11. $\log_8 1$

0

12. $\log_5 625$

4

The given coordinates are on $f(x)$, find the coordinates for $f^{-1}(x)$.

13. $(-2, 4) \rightarrow f^{-1} = (4, -2)$

14. $(4, -7) \rightarrow f^{-1} = (-7, 4)$

15. $(0, 11) \rightarrow f^{-1} = (11, 0)$

Find the algebraic inverse.

16. $f(x) = 15x - 1$

$\rightarrow x = 15y - 1$
 $x + 1 = 15y \rightarrow y = \frac{x+1}{15}$
 $f^{-1}(x) = \frac{x+1}{15}$

17. $f(x) = \frac{1}{4}x - 2$

$\rightarrow x = \frac{1}{4}y - 2$
 $x + 2 = \frac{1}{4}y$
 $4x + 8 = y$

$f^{-1}(x) = 4x + 8$

18. To convert from x degrees Celsius to y degrees Fahrenheit, we use the formula

$y = f(x) = \frac{9}{5}x + 32$. Find the formula To convert from x degrees Fahrenheit to y degrees Celsius?

$y - 32 = \frac{9}{5}x$
 $5(y - 32) = 9x$
 $\Rightarrow x = \frac{5y - 160}{9}$