Math 1215 Hw 12 Name: Solutions

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) $\Rightarrow (4, -2)$
14. (4 , -7) $\Rightarrow (-7, 4)$
15. (0 , 11) $\Rightarrow (11, 0)$

Find the algebraic inverse.

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

$15y - 1 = x$

$15y = x + 1$

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

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

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

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

$y = 4(x+2) \rightarrow f^{-1}(x) = 4(x+2)$

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?

$\frac{9}{5}y + 32 = x$

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

$f^{-1}(x) = \frac{5}{9}(x - 32)$