INVERSES WS

Name Fuston

Find the inverse of each of the following functions.

1. $y = 3^x$

$x = 3^y$

$\log_3 x = \log_3 3^y$

$\log_3 x = y$

2. $y = \log_7 x$

$x = 7^y$

$7^x = y$

3. $y = \log_2 x + 1$

$x = \log_2 x + 1$

$2^{x-1} = y$

4. $y = 5^x - 1$

$x = 5^y - 1$

$x + 1 = 5^y$

$\log_5 (x+1) = y$

5. $y = 6^{x+3}$

$x = 6^{y+3}$

$\log_6 (x) = y + 3$

$\log_6 (x) - 3 = y$

6. $y = \log_{\frac{1}{4}}(x+3)$

$x = \log_{\frac{1}{4}}(y+3)$

$\left(\frac{1}{4}\right)^x = y + 3$

$\left(\frac{1}{4}\right)^x - 3 = y$

7. $y = \log(x-9)$

$10^x = \log_{10}(y-9)$

$10^x = y - 9$

$10^x + 9 = y$

8. $y = 10^{x-2}$

$x = 10^{y-2}$

$\log(x) = y - 2$

$\log(x) + 2 = y$

9. $y = 2^{x-4} - 3$

$x = 2^{(y-4)} - 3$

$\log_2 (x+3) = \log_2 2^{(y-4)}$

$\log_2 (x+3) = y - 4$

$\log_2 (x+3) + 4 = y$

10. $y = \log_3 x + 5$

$x = \log_3 y + 5$

$x - 5 = \log_3 y$

$3^{x-5} = y$

11. $y = \log_3 (x-2) - 4$

$x = \log_3 (y-2) - 4$

$x + 4 = \log_3 (y-2)$

$3^{x+4} = y - 2$

$3^{x+4} + 2 = y$

12. $y = 4^{x+1} + 8$

$x = 4^{y+1} + 8$

$x - 8 = 4^{y+1}$

$\log_4 (x-8) = y + 1$

$\log_4 (x-8) - 1 = y$

odd answers: 1) $y = \log_3 x$ 3) $y = 2^{x-1}$ 5) $y = \log_6 (x) - 3$ 7) $y = 10^x + 9$ 9) $y = \log_2 (x+3) + 4$ 11) $y = 3^{x+4} + 2$