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$$1. y = 4x - 5 \Rightarrow x = \frac{y+5}{4}$$

$$2. y = 3x^3 + 2 \Rightarrow x = \sqrt[3]{\frac{y-2}{3}}$$

$$3. y = (x+1)^3 \Rightarrow x = \sqrt[3]{y} - 1$$

$$4. y = 0.5x + 2 \Rightarrow x = \frac{y-2}{0.5}$$

$$5. y = x + 3 \Rightarrow x = y - 3$$

$$6. f(x) = 2(x-2) \Rightarrow x = \frac{y}{2} + 2$$

$$7. f(x) = \frac{x}{5} \Rightarrow x = 5y$$

$$8. f(x) = 4x + 2 \Rightarrow x = \frac{y-2}{4}$$

9.

$$10. y = x - 3 \Rightarrow x = y + 3$$

$$11. y = \frac{x-1}{2} \Rightarrow x = 2y + 1$$

$$12. y = x^3 - 8 \Rightarrow x = \sqrt[3]{y+8}$$

$$13. y = \sqrt{x+2} \Rightarrow x = y^2 - 2$$

$$14. y = -\frac{2}{3}x - 1 \Rightarrow x = -\frac{3}{2}(y+1)$$

$$15. y = \frac{x+3}{5} \Rightarrow x = 5y - 3$$

$$16. y = 2(x-5)^2 \Rightarrow x = \sqrt{\frac{y}{2}} + 5$$

$$17. y = \sqrt{x} + 4 \Rightarrow x = (y-4)^2$$

$$18. y = 8x + 1 \Rightarrow x = \frac{y-1}{8}$$

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1.  $\log_4 \frac{1}{64} = -3$

2.  $\log_5 \frac{1}{25} = -2$

3.  $\log_8 \frac{1}{8} = -1$

4.  $\log_{11} 1 = 0$

5.  $\log_6 6 = 1$

6.  $\log_6 \frac{1}{216} = -3$

7.  $\log_{17} 1 = 0$

8.  $\log_{17} 17 = 1$

9.  $2^3 = 8$

10.  $5^2 = 25$

11.  $10^{-1} = .1$

12.  $10^{.845} = 7$

13.  $10^3 = 1000$

14.  $10^{-2} = .01$

15.  $3^4 = 81$

16.  $49^{1/2} = 7$

17.  $8^{-2/3} = 1/4$

18.  $2^7 = 128$

21.  $\log_2 64 = X$   $X^2 = 64$

$X = 8$

22. same as 21

23.  $\log_3 3^4 = X$   $3^X = 3^4$

$X = 4$

24.  $\log 10 = X$   $10^X = 10$

$X = 1$

25.  $\log 0.1 = X$   $10^X = 0.1$

$10^X = 10^{-1}$

$X = -1$

26.  $\log 1 = X$   $10^X = 1$

$X = 0$

27.  $\log_8 2 = X$   $8^X = 2$

$(2^3)^X = 2^1$

$3X = 1$

$X = 1/3$

28.  $\log_{32} 2 = X$   $32^X = 2$

$(2^5)^X = 2^1$

$5X = 1$

$X = 1/5$

29.  $\log_9 3 = X$   $9^X = 3$

$(3^2)^X = 3^1$

$2X = 1$

$X = 1/2$

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1.  $9^2 = 81$ ,  $\log_9 81 = 2$

2.  $\frac{1}{64} = (\frac{1}{4})^3$

$\frac{1}{64} = 4^{-3}$ ,  $\log_4 \frac{1}{64} = -3$

3.  $8^3 = 512$ ,  $\log_8 512 = 3$

4.  $(\frac{1}{3})^{-2} = 9$

$(3^{-1})^{-2} = 9$

$3^2 = 9$ ,  $\log_3 9 = 2$

5.  $2^9 = 512$ ,  $\log_2 512 = 9$

6.  $4^5 = 1024$ ,  $\log_4 1024 = 5$

7.  $5^4 = 625$ ,  $\log_5 625 = 4$

24 down 2

25 right 8

26 left 1 down 5

27 right 4 up 1

28.  $4^4 = 256$

29.  $7^0 = 1$

30.  $2^5 = 32$

31.  $10^1 = 10$

32.  $5^1 = 5$

33.  $8^{-2} = \frac{1}{64}$

49.  $y = \log_2 x$

$x = \log_2 y$

$2^x = y$

50.  $y = \log_{0.7} x$

$x = \log_{0.7} y$

$0.7^x = y$

51.  $y = \log_{100} x$

$x = \log_{100} y$

$100^x = y$

52.  $y = \log_8 x$

$x = \log_8 y$

$8^x = y$

53.  $y = \log_2 4x$

$x = \log_2 4y$

$2^x = 4y$

$\frac{2^x}{4} = y$

$\frac{2^x}{2^2} = y \Rightarrow 2^{x-2} = y$

54.  $y = \log(x+4)$

$x = \log(y+4)$

$10^x = y+4$

$10^x - 4 = y$