

$$14. \log_x \left(\frac{1}{8}\right) = 3$$

$$x^3 = \frac{1}{8}$$

$$\boxed{x = \frac{1}{2}} \checkmark$$

$$16. \log_2(x+4)^3 = 6$$

$$(x+4)^3 = 64$$

$$x+4 = 4$$

$$\boxed{x = 0} \checkmark$$

$$18. \log_{1/3}(1-2x)^{1/2} = -1$$

$$3 = \sqrt{1-2x}$$

$$9 = 1-2x$$

$$8 = -2x$$

$$\boxed{x = -4} \checkmark$$

$$20. 5^{1-2x} = \frac{1}{5}$$

$$1-2x = -1$$

$$-2x = -2$$

$$\boxed{x = 1}$$

$$22. 4^{x^2} = 2^x$$

$$(2^2)^{x^2} = 2^x$$

$$2x^2 = x$$

$$2x^2 - x = 0$$

$$x(2x-1) = 0$$

$$\boxed{x = 0 / x = \frac{1}{2}}$$

$$24. 9^{-x} = \frac{1}{3}$$

$$\frac{1}{9^x} = \frac{1}{3}$$

$$9^x = 3$$

$$\boxed{x = 2}$$

$$26. \left(\frac{1}{2}\right)^{1-x} = 4$$

$$(2^{-1})^{1-x} = 2^2$$

$$x-1 = 2$$

$$\boxed{x = 3}$$

$$28. 3^{2x} + 3^x - 2 = 0$$

$$(3^x - 1)(3^x + 2) = 0$$

$$3^x = 1$$

$$\log_3 3^x = \log_3 1$$

$$\boxed{x = \log_3 1}$$

$$\left. \begin{array}{l} 3^x = -2 \\ \log_3 3^x = \log_3 (-2) \end{array} \right\} \text{no solution}$$

$$30. 4^x - 2^x = 0$$

$$2^{2x} - 2^x = 0$$

$$2^x(2^x - 1) = 0$$

$$2^x = 0 \quad \left. \begin{array}{l} 2^x = 1 \\ x = \log_2 1 \end{array} \right\}$$

$$x = \log_2 0 \quad \left. \begin{array}{l} x = \log_2 1 \\ \boxed{x = 0} \end{array} \right\}$$

$$32. 9^{2x} = 27$$

$$(3^2)^{2x} = 3^3$$

$$4x = 3$$

$$\boxed{x = \frac{3}{4}}$$

$$34. 3^x = 14$$

$$\log_3 3^x = \log_3 14$$

$$\boxed{x = \log_3 14}$$

$$36. 2^{-x} = 1.5$$

$$\log_2 2^{-x} = \log_2 1.5$$

$$-x = \log_2 \frac{3}{2}$$

$$x = -\log_2 \left(\frac{3}{2}\right) \text{ or } \log_2 \left(\frac{3}{2}\right)^{-1}$$

$$\text{or } \log_2 \left(\frac{2}{3}\right)$$