



(2) Solve

$$a) 30^x + 2(5^x) + 3(6^x) + 6 = 0$$
$$= (5^x 6^x) + 2(5^x) + 3(6^x) + 6 = 0$$

$$\begin{array}{r} 5^x \times 3 \\ 6^x \times 2 \end{array}$$

$$\therefore (5^x + 3)(6^x + 2) = 0$$

$$\begin{array}{cc} \downarrow & \downarrow \\ 5^x + 3 = 0 & 6^x + 2 = 0 \end{array}$$

$$5^x = -3 \quad 6^x = -2$$

\therefore no solution //

$$b) 2^{x+1} + 1 = 0$$

$$2^{x+1} = -1$$

\therefore no solution //

$$c) \left(\frac{1}{49}\right)^{-x} = 343^{4/3}$$

$$(7^{-2})^{-x} = (7^3)^{4/3}$$

$$7^{2x} = 7^4$$

$$2x = 4$$

$$x = 2 //$$

$$d) 4^x + 8 = 9(2^x)$$

$$(2^2)^x + 8 = 9(2^x)$$

$$2^{2x} - 9(2^x) + 8 = 0$$

let 2^x be a .

$$a^2 - 9a + 8 = 0$$

$$(a-1)(a-8) = 0$$

$$(2^x - 1)(2^x - 8) = 0$$

$$\begin{array}{cc} \downarrow & \downarrow \end{array}$$

$$2^x = 1 \quad 2^x = 8 = 2^3$$

$$x = 0 // \quad x = 3 //$$

$$e) 8^{2/x} = 16^{1/x-1}$$

$$(2^3)^{2/x} = (2^4)^{1/x-1}$$

$$2^{6/x} = 2^{4/x-1}$$

$$\frac{6}{x} = \frac{4}{x-1}$$

$$6(x-1) = 4(x)$$

$$6x - 6 = 4x$$

$$2x = 6$$

$$x = 3 //$$