

$$2) 5^x = 25 \Leftrightarrow 5^x = 5^2 \Leftrightarrow x = 2$$

$$b) 3^x = \frac{1}{9} \Leftrightarrow 3^x = \frac{1}{3^2} \Leftrightarrow 3^x = 3^{-2} \Leftrightarrow x = -2$$

$$c) x^4 = 16 \Leftrightarrow x = \sqrt[4]{2^4} = 2$$

$$d) 4^x = 64 \Leftrightarrow 4^x = 4^3 \Leftrightarrow x = 3$$

$$e) 4^x = 8 \Leftrightarrow (2^2)^x = 2^3 \Leftrightarrow 2^{2x} = 2^3 \Leftrightarrow 2x = 3 \quad \left. \begin{array}{l} x = \frac{3}{2} \end{array} \right\}$$

$$f) 9^{2x+1} = 1 \Leftrightarrow 9^{2x+1} = 9^0 \Leftrightarrow 2x+1 = 0 \Leftrightarrow x = -\frac{1}{2}$$

$$g) 2^4 \cdot 2^x = (2^2)^{3x+5} \Leftrightarrow 2^{4+x} = 2^{6x+10}$$

$$\Leftrightarrow 4+x = 6x+10 \Leftrightarrow -6 = 5x \Leftrightarrow x = -12 = -\frac{6}{5}$$

$$h) 8^{7x-2} = 8^{-3x+8} \Leftrightarrow 7x-2 = -3x+8$$

$$\Leftrightarrow 10x = 10 \Leftrightarrow x = 1$$

$$i) (2^{-1})^{x+7} = 2^1 \Leftrightarrow 2^{-x-7} = 2^1 \Leftrightarrow -x-7 = 1$$

$$x = -7-1 \Leftrightarrow x = -8$$