

6-2d Solving Equations Containing Exponents

$$3^x = 3^2$$

$$\boxed{x = 2}$$

* When the base is the same, you set the exponents equal to each other and solve.

EXAMPLES

$$\textcircled{1} a^{\frac{1}{2}} = a^{\frac{x}{4}}$$

$$4 \cdot \frac{1}{2} = \frac{x}{4} \cdot 4$$

$$\boxed{2 = x}$$

$$\textcircled{2} 5^{x+4} = 5^3$$

$$x+4 = 3$$

$$\begin{array}{r} -4 \\ -4 \end{array}$$

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

$$\textcircled{3} 6^{x+5} = 36$$

$$6^{x+5} = 6^2$$

$$x+5 = 2$$

$$\boxed{x = -3}$$

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$$\textcircled{4} 10^{4n+2} = 1000$$

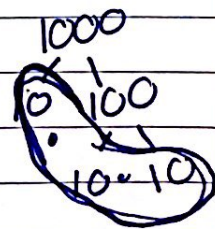
$$10^{4n+2} = 10^3$$

$$4n+2 = 3$$

$$\begin{array}{r} -2 \\ -2 \end{array}$$

$$4n = 1$$

$$\boxed{n = \frac{1}{4}}$$



$$\textcircled{5} 4^{-3x} = 64$$

$$4^{-3x} = 4^3$$

$$\begin{array}{r} -3x = 3 \\ -3 \quad -3 \end{array}$$

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

