Exponents

Laws of exponents

$a^x \times a^y = a^{x+y}$

$\dfrac{a^x}{a^y} = a^{x-y}$

$(a^x)^y$

$(ab)^x$

$\left(\dfrac{a}{b}\right)^n = \dfrac{a^n}{b^n}$

$a^0 = 1$, a is all real numbers

$0^0 = 0$

$a^{-x} = \dfrac{1}{a^x}$

$\dfrac{1}{a^{-x}} = a^x$

$\sqrt{a} = a^{\frac{1}{2}}$

$\sqrt[3]{a} = a^{\frac{1}{3}}$

$\sqrt[n]{a} = a^{\frac{1}{n}}$

$$a^x \times a^y = a^{x+y}$$

$$\frac{a^x}{a^y} = a^{x-y}$$

1. Simplify $3^2 \times 3^4$ using the exponent laws.

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2. Simplify $k^1 \times k^9$ using the exponent laws.

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3. Simplify $x^3 \times 3^2$ using the exponent laws.

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$(a^x)^y$

$(ab)^x$

$\left(\dfrac{a}{b}\right)^n = \dfrac{a^n}{b^n}$

$a^0 = 1$, **a is all real numbers**

$0^0 = 0$

1. Write $(5^2)^3$ without brackets.

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2. Write $(k^3)^5$ without brackets.

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$$a^{-x} = \frac{1}{a^x}$$
$$\frac{1}{a^{-x}} = a^x$$

1. Write 3^{-3} without negative exponents.

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2. Write $(5^3)^{-4}$ without negative exponents.

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3. Write $(27)^{-\frac{2}{3}}$ without negative exponents.

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