

Multiplying
Exponents
with Same
Base
(Product Rules)

Power to
a Power

Zero

Dividing
Exponents with
Same Base
(Quotient Property)

Negative
Exponents

Power

$$x^5 \cdot x^3 = x^{5+3} = x^8$$

$$9^2 \cdot 9^4 = 9^{2+4} = 9^6$$

Add the exponents,
base stays the same

Subtract the exponents,
base stays the same

$$\frac{x^9}{x^4} = x^{9-4} = x^5$$

$$\frac{8^5}{8^{14}} = \frac{1}{8^{14-5}} = \frac{1}{8^9}$$

$$(x^4)^5 = x^{4 \cdot 5} = x^{20}$$

$$(3^7)^2 = 3^{7 \cdot 2} = 3^{14}$$

Multiply the exponents,
base stays the same

Take the reciprocal,
keep the base and make the exponent positive

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

$$\frac{1}{3^{-4}} = \frac{3^4}{1} = 3^4$$

Any number, except 0, raised to the zero power is equal to 1

$$x^0 = 1$$

$$254^0 = 1$$

$$(-5)^0 = 1$$