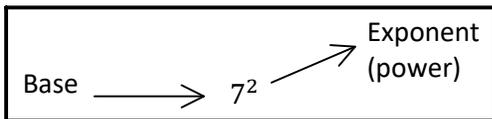


# M9 - 3.1 - Add/Subtract Exponents Laws Notes



**Remember:**

- Never multiply the base by the exponent
- Must have same base to use laws.

**Multiplying with the Same Base, Add Exponents**

$$2^3 \times 2^2 = (2 \times 2 \times 2) \times (2 \times 2) = 2^5$$

$$5^2 \times 5^4 = (5 \times 5) \times (5 \times 5 \times 5 \times 5) = 5^6$$

$$2^3 \times 2^2 = 2^{3+2} = 2^5$$

Add Exponents

$$5^2 \times 5^4 = 5^6$$

$$2^3 \times 2^2 = 32 = 2^5 \quad \checkmark \quad \text{Check Answer!}$$

$$3^2 \times 3^1 = 3^{2+1} = 3^3$$

$$3 = 3^1$$

**Dividing with the Same Base, Subtract Exponents.**

$$\frac{3^5}{3^2} = \frac{\cancel{3 \times 3 \times 3 \times 3 \times 3}}{\cancel{3 \times 3}} = 3^3 \quad \frac{\cancel{3}}{\cancel{3}} = 1$$

$$4^6 \div 4^3 = \frac{\cancel{4 \times 4 \times 4 \times 4 \times 4 \times 4}}{\cancel{4 \times 4 \times 4}} = 4^3$$

$$\frac{3^5}{3^2} = 3^{5-2} = 3^3$$

Subtract Exponents

$$\frac{4^6}{4^3} = 4^{6-3} = 4^3$$

$$\frac{3^5}{3^2} = 27 = 3^3 \quad \checkmark \quad \text{Check Answer!}$$

Ultimately you will either use: Exponent Laws **OR** Repeated Multiplication and Division Theory