

## Product Property

$$\log_b m \cdot n = \log_b m + \log_b n$$

## Power Property

$$\log_b m^x = x \cdot \log_b m$$

## Quotient Property

$$\log_b \frac{m}{n} = \log_b m - \log_b n$$

## Inverse Properties

$$\log_b b^x = x \quad b^{\log_b x} = x$$

## Product Property

$$\log_b m \cdot n = \log_b m + \log_b n$$



Expand

Condense

Expand

$$\log_7 15$$

Condense

$$\log_4 2 + \log_4 7$$

### Quotient Property

$$\log_b \frac{m}{n} = \log_b m - \log_b n$$

Expand  
Condense

Expand

Condense

$$\log_3 \frac{2}{7}$$

$$\log_2 5 - \log_2 8$$

### Power Property

$$\log_b m^x = x \cdot \log_b m$$

Expand  
Condense

Expand

Condense

$$\log_7 4^3$$

$$2 \cdot \log_6 3$$

### Inverse Properties

$$\log_b b^x = x \quad b^{\log_b x} = x$$

$$\log_4 4^3$$

$$2^{\log_2 5}$$

$$\log_b b = 1$$

$$\log_b 1 = 0$$

### Product Property

$$\log_b m \cdot n = \log_b m + \log_b n$$

### Power Property

$$\log_b m^x = x \cdot \log_b m$$

### Quotient Property

$$\log_b \frac{m}{n} = \log_b m - \log_b n$$

### Inverse Properties

$$\log_b b^x = x \quad b^{\log_b x} = x$$