

# Algebra 2

## 6-01 Exponent Properties and $e$ (5.2, 6.2)

### Properties of Rational Exponents

- $x^m \cdot x^n = x^{m+n}$  (Product Property)
- $(xy)^m = x^m y^m$  (Power of a Product Property)
- $(x^m)^n = x^{mn}$  (Power of a Power Property)
- $\frac{x^m}{x^n} = x^{m-n}$  (Quotient Property)
- $\left(\frac{x}{y}\right)^m = \frac{x^m}{y^m}$  (Power of a Quotient Property)
- $x^{-m} = \frac{1}{x^m}$  (Negative Exponent Property)

Simplify the expression. Write your answer using only positive exponents.

$$\left(\frac{3w}{2x}\right)^4$$

$$6b^0$$

### $e$

- Called the \_\_\_\_\_
- Found by putting really big numbers into  $\left(1 + \frac{1}{n}\right)^n =$  \_\_\_\_\_
- \_\_\_\_\_ number like  $\pi$

### Simplifying natural base expressions

- Just treat  $e$  like a regular \_\_\_\_\_

$$(5e^{7x})^4$$

$$\frac{11e^9}{22e^{10}}$$

### Evaluate the natural base expressions using your calculator

Rewrite in the form  $y = ab^x$

$$y = e^{-0.75t}$$

$$y = 2e^{0.4t}$$