Lesson 20

Foundations of College Algebra

# Function Notation

## Definition – Function Notation

For the function :  
 is the name of the function,  
 is the independent variable,  
 is the dependent variable.  
We read as “ of ” or “the value of at ”.

## Examples

For the function , evaluate the function.

For the function , evaluate the function.

## You Try It

For the function , evaluate the function.

For the function , evaluate the function.

# Exponential Expressions

## Review

Rember that an exponent indicates repeated multiplication of the same quantity.

## You Try It

Simplify.

# Product Property for Exponents

## Fact

If is a real number and and are counting numbers, then  
To multiply with like bases, add the exponents.

## Examples

Simplify each expression using the Product Property for Exponents.

## You Try It

Simplify each expression using the Product Property for Exponents.

# Power Property for Exponents

## Fact

If is a real number, and and are whole numbers, then  
To raise a power to a power, multiply the exponents.

## Examples

Simplify each expression using the Power Property of Exponents.

## You Try It

Simplify each expression using the Power Property of Exponents.

# Product to a Power Property

## Fact

If and are real numbers and is a whole number, then  
To raise a product to a power, raise each factor to that power.

## Examples

Simplify each expression using the Product to a Power Property.

## You Try It

Simplify each expression using the Product to a Power Property.

# Using the Properties Together

## Examples

Simplify each expression.

## You Try It

Simplify each expression.

# Quotient Property for Exponents

## Fact

If is a real number, , and and are whole numbers, then

## Examples

Simplify.

## Examples

Simplify.

# Zero Exponent

## Fact

If is a non-zero number, then .

## Examples

Simplify.

## You Try It

Simplify.