Coreq Support for Section 5.1a

# Topic 1: Using Transformations to Graph Functions

# Topic 2: Properties of Exponents

# (Video: Exponents)

For Chapter 5, it will be important to know the properties of exponents and to be able to rewrite and evaluate expressions that contain exponents. Here is the list of properties of exponents first introduced in the 1020 notes for section 1.1a.

**Product Rule for Exponents**

If $m$ and $n$ are positive integers and $a$ is a real number, then

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**Power Rule for Exponents**

If $m$ and $n$ are positive integers and $a$ is a real number, then

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**Power of a Product Rule**

If $n$ is a positive integer and $a$ and $b$ are real numbers, then

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**Power of a Quotient Rule**

If $n$ is a positive integer, $a$ and $b$ are real numbers, and $b\ne 0$, then

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**Quotient Rule for Exponents**

If $m$ and $n$ are positive integers, $a$ is a real number, and $a\ne 0$, then

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**Zero Exponent Rule**

If b is a real number such that , then .

# Topic 3: Evaluating Expressions with Negative Exponents

# (Video: Negative Exponents)

If $a$ is a real number other than $0$ and $n$ is an integer, then

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# Topic 4: Rational Exponents

# (Video: Rational Exponents 0:00 – 16:30)

**Definition of :** If $n$ is an integer greater than $1$ and  is a real number, then ****.

**Definition of :** If m and n are integers greater than 1 with  in lowest terms, then  as long as  is a real number.

# Topic 5: Rewriting an Expression in the Form

When solving an equation where the variable is an exponent, it is sometimes useful to rewrite one or both sides of the equation using a different base. For example, can be rewritten as .