Section 3.4: The Chain Rule

# Topic 1: Composite Functions

A function *m* is a **composition of functions** *f* and *g* if .

In this case *m* is called a **composite function**. The domain of *m* is the set of all real numbers such that *x* is in the domain of *g* and  is in the domain of *f.*

# Topic 2: General Power Rule

If  is a differentiable function, *n* is any real number, and , then

.

It can also be written  or .

**Topic 3: The Chain Rule**

If and define a composite function , then

provided that and exist.

Equivalently, if and define a composite function , then

provided that and exist.