# Chapter 13 – 2a Integration by Substitution

### Reversing the Chain Rule

Chain Rule: If then

The corresponding integration rule is given by:

This is sometimes written as:

### Some General Indefinite Integral Formulas Based on the Chain Rule

**Example 1.** Find the indefinite integral of

,

**Example 2.** Find the indefinite integral of

,

**Example 3.** Find the indefinite integral of

,

**Example 4.** Find the indefinite integral of

, d

**Example 5.** Find the indefinite integral of

,

**Example 6.** Find the indefinite integral of

, d

**Example 7.** Find the indefinite integral of

, and

**Example 8.** Find the indefinite integral of

, and

**Example 9.** The marginal price for a weekly demand of x bottles of baby shampoo in a drugstore is given by

Find the price-demand equation if the weekly demand is 150 when the price is $4.00 a bottle. Estimate the weekly demand if the price falls to $2.50 a bottle.

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