1.3 Evaluating Limits Analytically

-Evaluate a limit using properties of limits

-Evaluate a limit using dividing and rationalizing techniques

The value of a limit can easily be evaluated by using **direct substitution** if the function is continuous at c (to be discussed in section 1.4).

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#’s 19-35 odd, 37, 38, 47-53 odd, 96

Thus: 

**Some basic limits:**

1)  2)  3) 

Example)

1)  2)  3) 

**Theorem: Properties of Limits**

Let b and c be real numbers, let n be a positive integer, and let f and g be functions with the following limits:

  and 

1) Scalar Multiple 

2) Sum of Diff. 

3) Product 

4) Quotient 

5) Power 

Example)

Let , , and 

1)  2)  3) 

**Limits of Trig Functions**

The limits of trigonometric functions work the same way as normal functions. Typically they can be solved by direct substitution and by using limit properties.

Example)

1)  2)  3) 

**Finding the Limit of a Rational Function**

1)  2) 

3) 