Section 2.3

I. Informal Definition of Continuity

II. Definition of Continuity at a Point

A function $f$ is continuous at a point $c$ if

a. $f$ is defined at $c$

b. $\lim_{x \to c} f(x)$ exists

c. $a = b$

Examples

III. Continuity Theorem: If $f$ is a polynomial, a rational function, a power function, a trigonometric function or an inverse trigonometric function, then $f$ is continuous wherever $f$ is defined.

Examples

IV. Algebra of Continuous Functions

a. Slide

V. Composition Limit Rule

VI. One-side Continuity
VII. Continuity on an Interval
   a. Open Interval \((a,b)\)
   b. Closed Interval \([a,b]\)
   c. Half-open Interval

Examples

VIII. Suspicious Points
   a. Definition change points in piece-wise functions
   b. Points at which substitution yield a division by 0

Examples

IX. Intermediate Value Theorem
   a. Ring of Ice and Fire

X. Root Location

Examples