Section 2.1

I. Informal Definition: $\lim_{x \to c} f(x) = L$ means that the computed values of *f* can be made arbitrarily close to the value *L* by choosing *x* sufficiently close to *c* (but not equal to *c*).

Examples (Tabular)

II. One-Sided Limits

$\lim_{x \to c^+} f(x) = L$ means that the computed values of *f* can be made arbitrarily close to the value *L* by choosing *x* sufficiently close to *c* on the right (but not equal to *c*).

$\lim_{x \to c^-} f(x) = L$ means that the computed values of *f* can be made arbitrarily close to the value *L* by choosing *x* sufficiently close to *c* on the left (but not equal to *c*).

Examples (Tabular)

III. Infinite Limits: $\lim_{x \to c} f(x) = \infty$ means that the computed values of *f* can be made arbitrarily large by choosing *x* sufficiently close to *c* (but not equal to *c*).

Examples (Tabular)

IV. Formal Definition: $\lim_{x \to c} f(x) = L$ means that for each $\varepsilon > 0$ there exists a $\delta > 0$ such that $|f(x) - L| < \varepsilon$ whenever $0 < |x - c| < \delta$.

Example