Source: [KBhMATH401Limits]

1 | Types of Discontinuity

Infinite Discontinuity (verticle asymtote)

Double Sided Limit: does not exist Function: not defined

$$f(x) = \frac{x^2+2}{x^2-4}$$
 where $x = 2$

Jump Discontinuity (gap)

Double Sided Limit: does not exist Function: defined

"a ceiling function" $f(x) = \lceil x \rceil$ where x = 3

Point Discountinuity (hole)

Double Sided Limit: exists Function: not defined

$$f(x) = \frac{x^6-1}{x^{10}-1}$$
 where $x = 1$