

Source: [KBhMATH401SubIndex](#)

1 | Limits

1.1 | Warming up

Here's a function

$$y = \frac{1}{x}.$$

We know that it has

- Domain $D(-\infty, 0)(0, \infty)$
- Range $R(-\infty, 0)(0, \infty)$
- As $x \rightarrow \infty$, $y \rightarrow 0$
- Function is *odd*, that is, $f(-x) = -f(x)$

1.2 | The Limit Notation

See [KBhMATH401TheLimitNotation](#)

1.3 | Computing Limits Algebraically

See [KBMATH401ComputingLimits](#)

1.4 | Types of Discontinuity

See [KBhMATH401Discontinuity](#)

1.5 | Error and Epsilon Delta Proofs

See [KbhMATH401EpsilonDeltaProofs](#)

1.6 | CN10062020 Continuity

#disorganized #flo

$$\lim_{x \rightarrow a} f(x) \neq f(a).$$

Sometimes

Notice the definition implicitly requires three things if f is continuous at a

1. $\lim_{x \rightarrow a} f(x)$

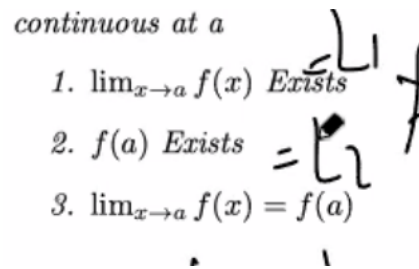


Figure 1: threestepslimit.png

Definition 1 · **Removable discontinuity** Removeable discontinuity are often holes. They are discontinuities that, with an additional definition, one could remove.

For instance, $f(x) = \frac{x^2 - x - 2}{x - 2}$ has a hole at $x = 2$, but if we defined a value for $x = 2$, our lovely discontinuity is immediately removed.