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 $R(-\infty, 0)(0, \infty)$
- $As\ x \to \infty,\ y \to 0$
- 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

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

Sometimes

Notice th edefinitiion implicitely requeres three things if f is contiuous at a

1. $\lim_{x \to a} f(x)$ exists
2. $f(a)$ exists
3.

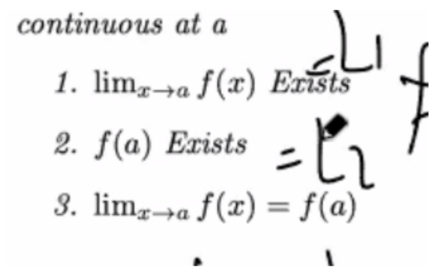

Figure 1: threestepslimit.png

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.