

Source: [\[KBMath401ComputingLimits\]](#)

## 1 | Limit Laws

Here 'em:

**Limit Laws** Suppose that  $c$  is a constant and the limits

$$\lim_{x \rightarrow a} f(x) \quad \text{and} \quad \lim_{x \rightarrow a} g(x)$$

exist. Then

1.  $\lim_{x \rightarrow a} [f(x) + g(x)] = \lim_{x \rightarrow a} f(x) + \lim_{x \rightarrow a} g(x)$

2.  $\lim_{x \rightarrow a} [f(x) - g(x)] = \lim_{x \rightarrow a} f(x) - \lim_{x \rightarrow a} g(x)$

3.  $\lim_{x \rightarrow a} [cf(x)] = c \lim_{x \rightarrow a} f(x)$

4.  $\lim_{x \rightarrow a} [f(x)g(x)] = \lim_{x \rightarrow a} f(x) \cdot \lim_{x \rightarrow a} g(x)$

5.  $\lim_{x \rightarrow a} \frac{f(x)}{g(x)} = \frac{\lim_{x \rightarrow a} f(x)}{\lim_{x \rightarrow a} g(x)}$  if  $\lim_{x \rightarrow a} g(x) \neq 0$

6.  $\lim_{x \rightarrow a} f(g(x)) = f\left(\lim_{x \rightarrow a} g(x)\right)$

7.  $\lim_{x \rightarrow a} f(x)^n = \left(\lim_{x \rightarrow a} f(x)\right)^n$

Figure 1: Screen Shot 2020-09-02 at 1.55.13 PM.png