LaTeX Tutorial 8: Calculus Notation

Joel M. Brigida: ADolbyB

The function $f(x) = (x-3)^2 + \frac{1}{2}$ has domain $\mathrm{D}_f : (-\infty, \infty)$ and range $\mathrm{R}_f : \left[\frac{1}{2}, \infty\right)$

$$\lim_{x \to a^-} f(x) \tag{1}$$

$$\lim_{x \to a^+} f(x) \tag{2}$$

$$\lim_{x \to a} \frac{f(x) - f(a)}{x - a} = f'(a) \tag{3}$$

$$\int \sin(x)\,\mathrm{d}x = -\cos(x) + C \tag{4}$$

$$\int_a^b f(x)\,\mathrm{d}x \tag{5}$$

$$\int_a^b f(x)\,\mathrm{d}x \tag{6}$$

$$\int_a^b x^2\,\mathrm{d}x = \left[\frac{x^3}{3}\right]_a^b = \frac{1}{3}b^3 - \frac{1}{3}a^3 \tag{7}$$

$$\sum_{n=1}^{\infty} ar^n = a + ar + ar^2 + \cdots + ar^n \tag{8}$$

$$\int_a^b f(x)\,\mathrm{d}x = \lim_{x \to \infty} \sum_{k=1}^{n} f(x_k) \cdot \Delta x \tag{9}$$

$$\vec{v} = v_1\vec{i} + v_2\vec{j} = \langle v_1,\, v_2 \rangle \tag{10}$$