

$$R \rightarrow R$$

$$R \times R \rightarrow R$$

$$f'(x) =$$

$$\lim_{\Delta x \rightarrow 0}$$

$$\Delta x = 1 \times 10^{-6}$$

$$\frac{f(x) - f(x + \Delta x)}{\Delta x}$$

$$\Delta x$$

$$\frac{d}{dx} 3x^2$$

$$d \times$$

$$\frac{d}{dx} x^2 + \cancel{2x} = d \times$$

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$$d \times x^2 + \cancel{2x}$$

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$$\nabla f(x, y, z) = \left[ \frac{\partial f(x, y, z)}{\partial x}, \frac{\partial f(x, y, z)}{\partial y}, \frac{\partial f(x, y, z)}{\partial z} \right]$$

$$D : (\mathbb{R} \rightarrow \mathbb{R}) \rightarrow (\mathbb{R} \rightarrow \mathbb{R})$$

$$\nabla f(x)$$

$$D : (\mathbb{R}^n \rightarrow \mathbb{R}) \rightarrow \mathbb{R}^n \rightarrow \mathbb{R}$$