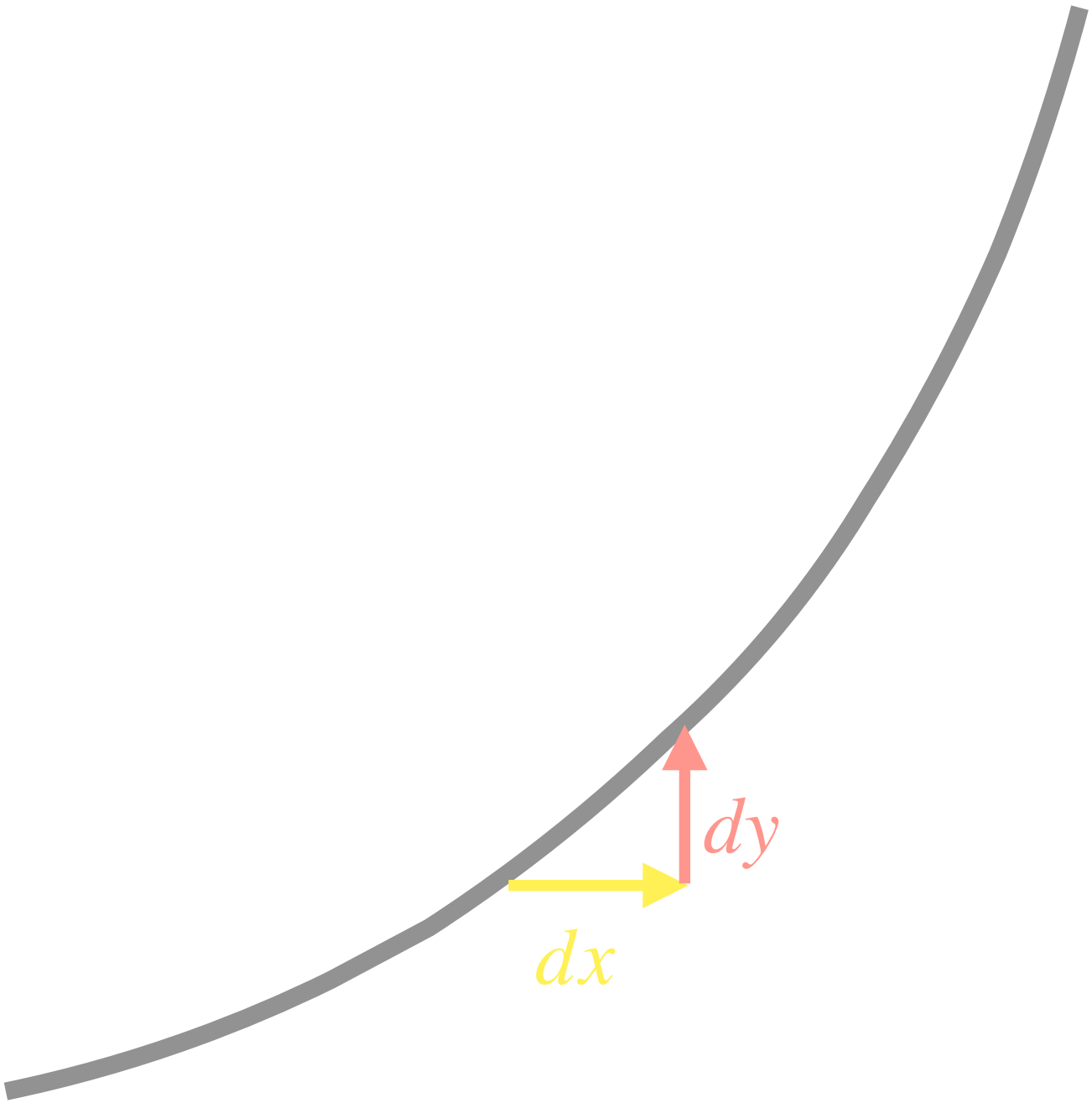
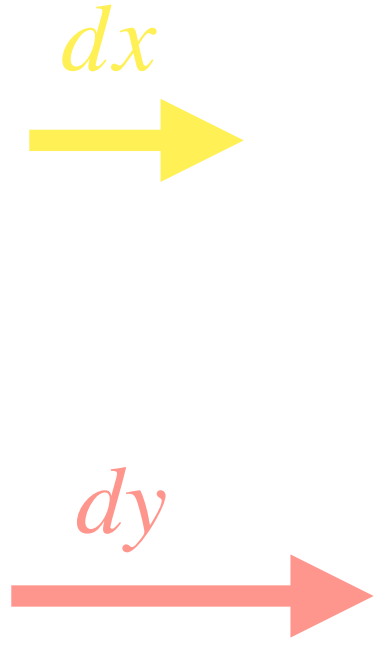
derivatives recap

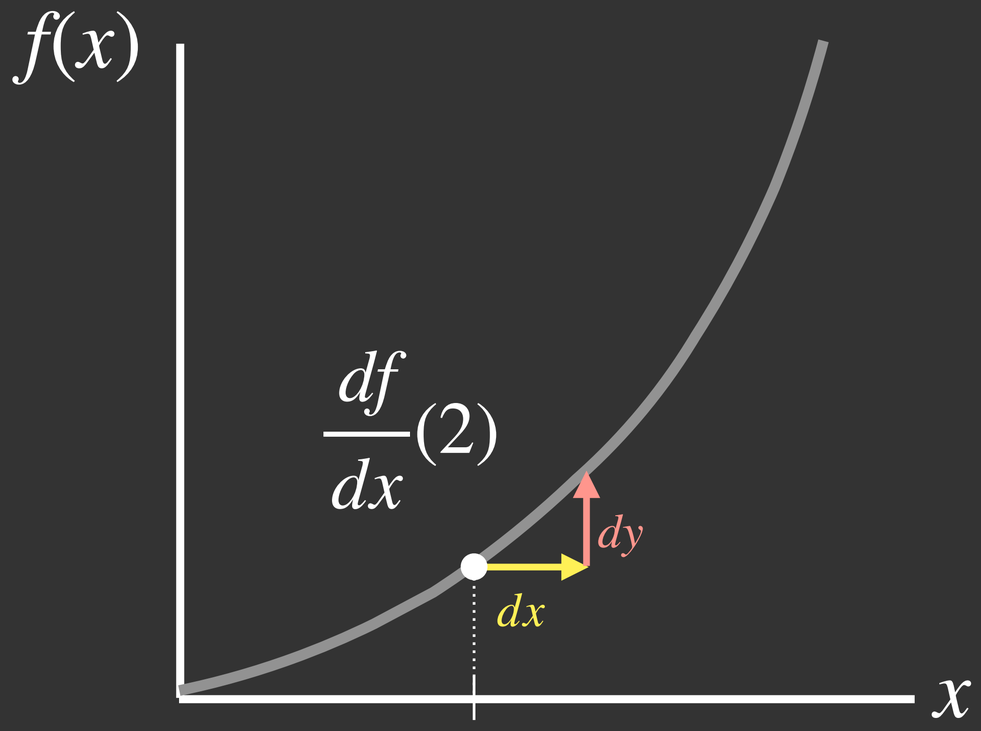

dy
dx

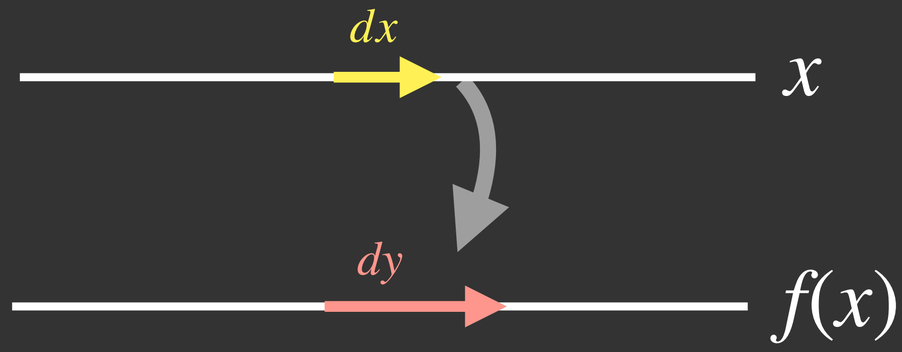

dx
dy

derivatives recap

Before: assume $f(x)$ with derivative $\frac{df}{dx}$. What does this mean?

$$\frac{df}{dx} = \lim_{h \to \infty} \frac{f(a+h) - f(a)}{h}$$





partial derivatives

Now: assume $f(x, y)$ with $\frac{\partial f}{\partial x}$ and $\frac{\partial f}{\partial y}$

$$\frac{\partial f}{\partial x} = \lim_{h \to \infty} \frac{f(a+h, b) - f(a, b)}{h}$$

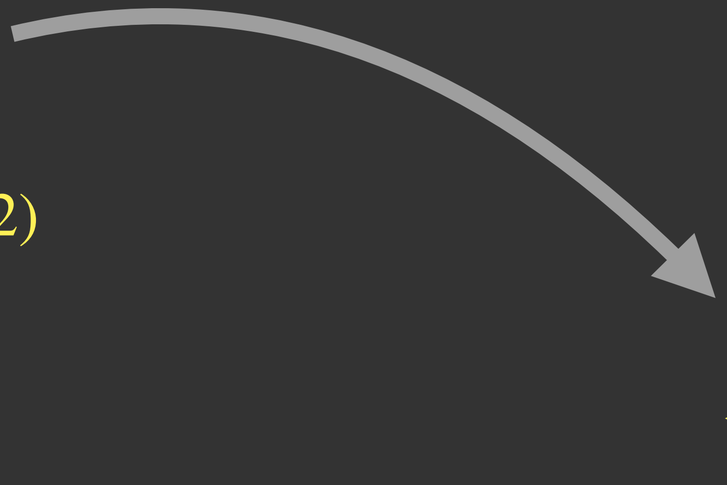
$$\frac{\partial f}{\partial y} = \lim_{h \to \infty} \frac{f(a, b+h) - f(a, b)}{h}$$

for $f(x, y, z, \ldots)$

not a graphical function!

$\frac{\partial f}{\partial y}(1,2)$

$\frac{\partial f}{\partial x}(1,2)$



dy

dx