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Lesson 2.4: Average Rate of Change of a Function

Often, we will use functions to model speed.

We will call these functions:

$$s(t) = total\ distance\ travelled\ at\ time\ t$$

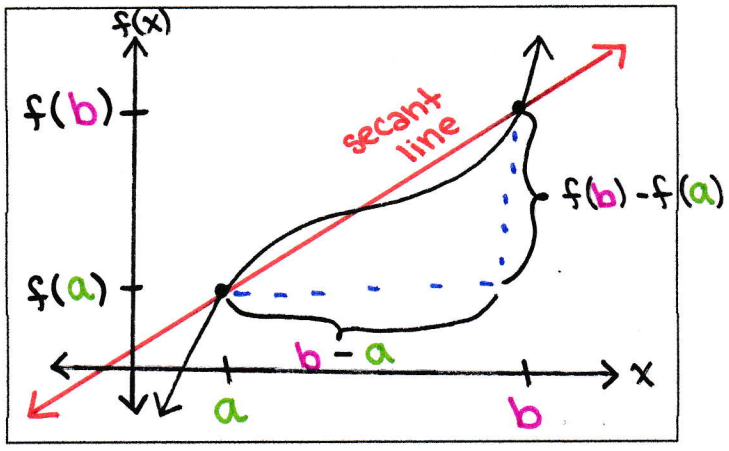
To calculate average speed use: $$average\ speed = \frac{distance\ travelled}{time\ elapsed}$$

Average Rate of Change

The average rate of change of a the function $y = f(x)$ between $x = a$ and $x = b$ is:

$$\text{average rate of change} = \frac{\text{change in } y}{\text{change in } x} = \frac{f(b) - f(a)}{b - a}$$

The average rate of change is the slope of the secant line between $x = a$ and $x = b$ on the graph of f, that is, the line that passes through $(a, f(a))$ and $(b, f(b))$.



Note: Equations of lines have a constant rate of change.