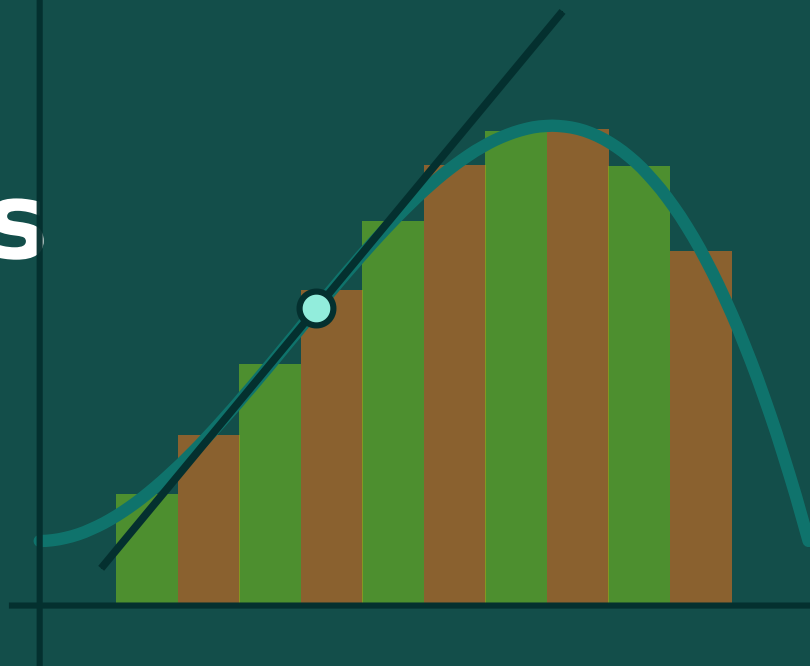


Graphs, sequences and calculus



Straight line

$$y = mx + c, \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

**Parallel;
perpendicular**

$$m_1 = m_2; \quad m_1 \times m_2 = -1$$

Midpoint; length

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right), \quad \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Differentiation

$$y = ax^n \Rightarrow \frac{dy}{dx} = anx^{n-1}$$

Kinematics

$$v = \frac{ds}{dt}, \quad a = \frac{dv}{dt}$$