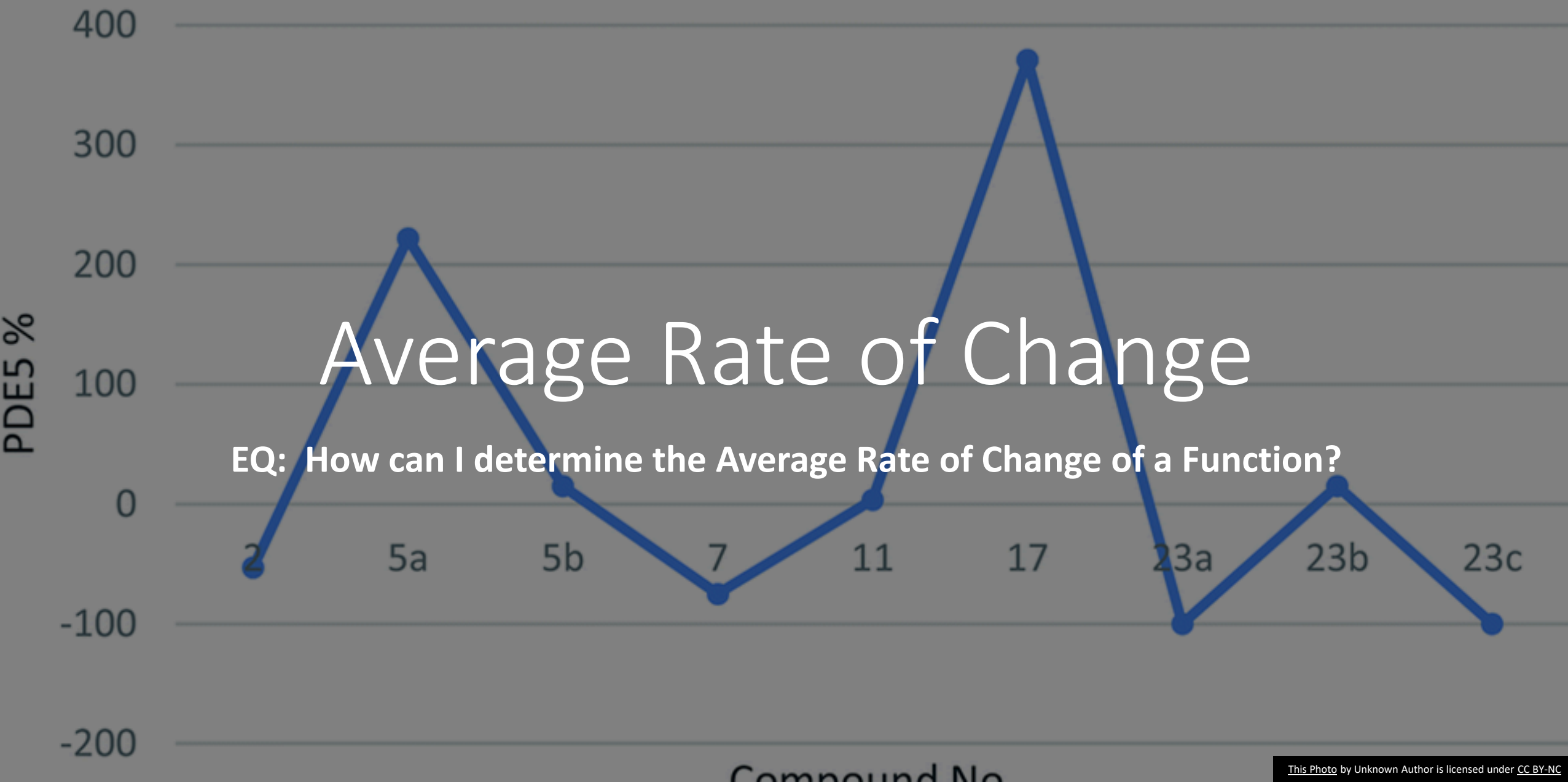# Average Rate of Change

**EQ:  How can I determine the Average Rate of Change of a Function?**

Average Rate of Change is also known as **slope** .

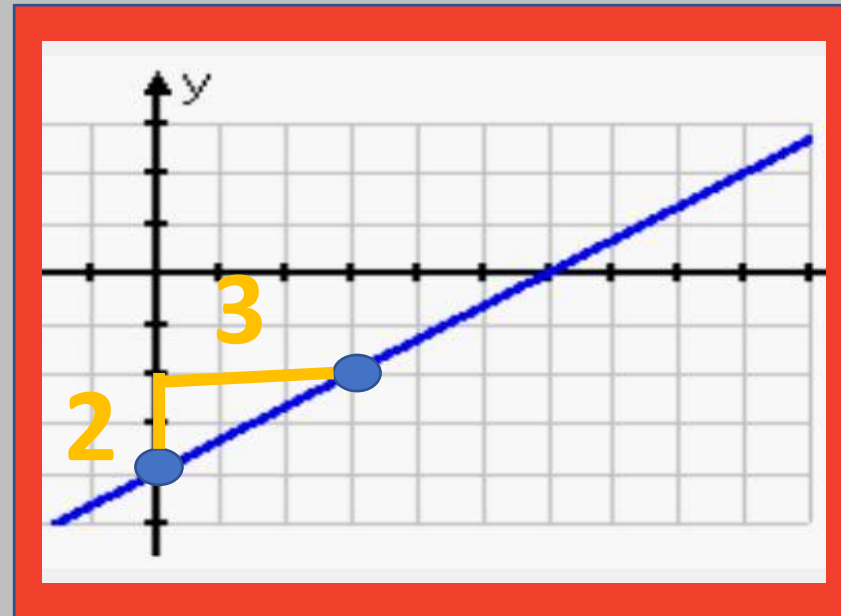$$m = \frac{rise}{run}$$

# The Slope Formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

How Do I Find the Average Rate of Change Given 2 Points?

# DESCRIBE THE AVERAGE RATE OF CHANGE.
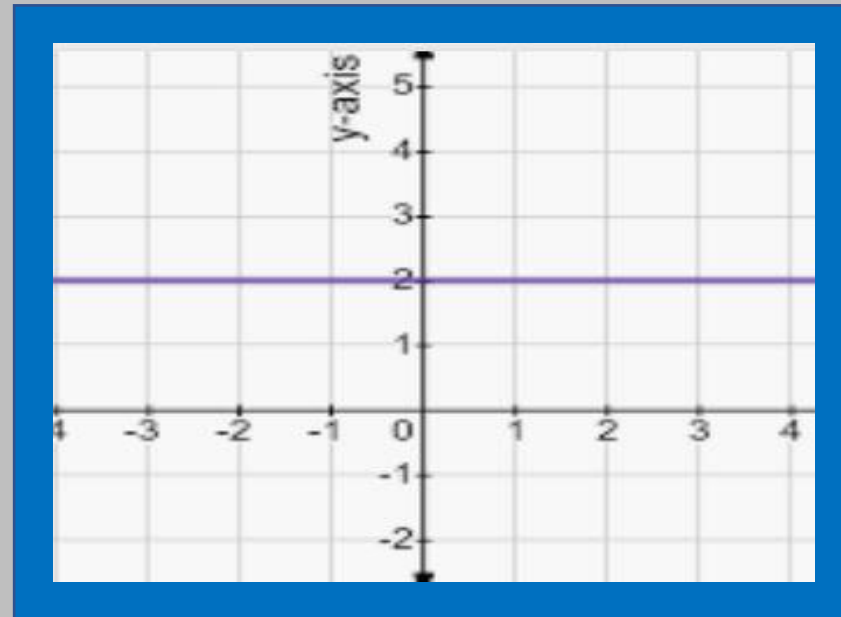
**The Average Rate of change is *constant*.**



**EXAMPLE 1**

**The Average Rate of change is $\frac{2}{3}$.**

# DESCRIBE THE AVERAGE RATE OF CHANGE.

**The Average Rate of change is *constant*.**
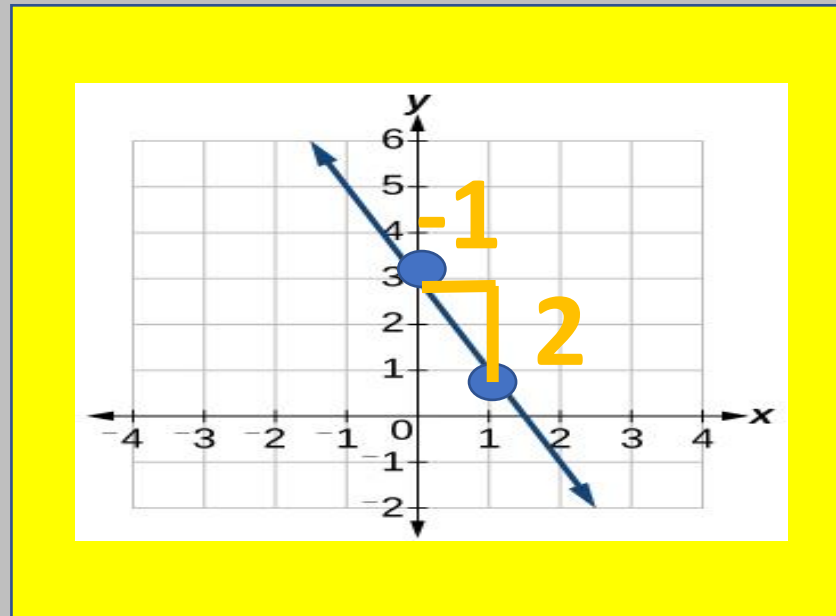


**EXAMPLE 2**

**The Average Rate of change is 0.**

# DESCRIBE THE AVERAGE RATE OF CHANGE.

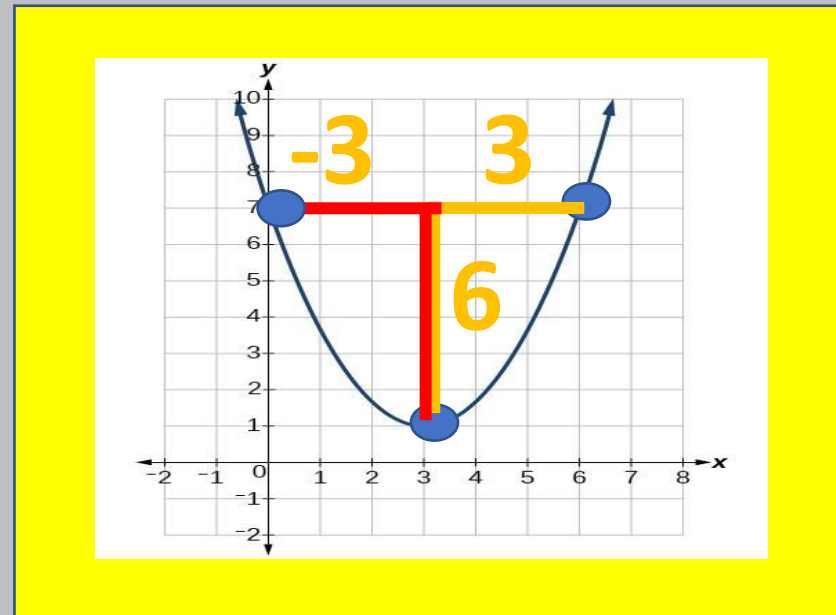**The Average Rate of change is *constant*.**



**The Average Rate of change is $-2$.**

**EXAMPLE 3**

# DESCRIBE THE AVERAGE RATE OF CHANGE.
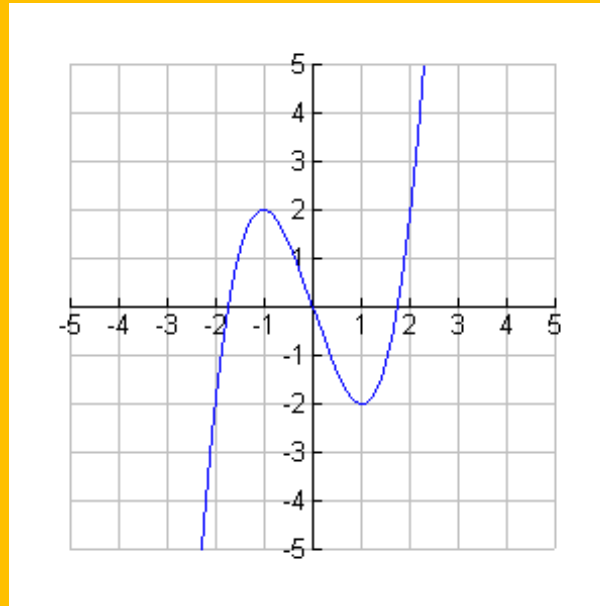
**The Average Rate of change is *variable*.**



The Average Rate of change is 2 on the left side and -2 and on the right side.

**EXAMPLE 4**

# EXAMPLE

- Find the **average rate of change** of $f(x) = x^3 - 3x$ when $x_1 = -2$ and $x_2 = 0$.

$x_1$

$f(-2) = (-2)^3 - 3(-2) = -2$

$y_1$

$x_2$

$y_2$

$f(0) = (0)^3 - 3(0) = 0$



$m = \dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{0 - (-2)}{0 - (-2)} = 1$

**The Average Rate of change is 1.**