

# MA 109: September 18

Average Rate of Change: Numbers Only

Start of Class

Instructor Information

Name:

Email:

Office Hours:

Warm-up Questions

Notes

average rate of change = slope

Example: Suppose  $f(x) = 3x^2 - 4$ . What is the average rate of change of  $f(x)$  on  $[-1, 2]$ ?

$$y_1 = f(x_1) = f(-1) = 3(-1)^2 - 4 = 3(1) - 4 = -1$$

$(-1, -1)$

$$y_2 = f(x_2) = f(2) = 3(2)^2 - 4 = 3(4) - 4 = 12 - 4 = 8$$

$(2, 8)$

$$\text{AROC} = \text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{8 - (-1)}{2 - (-1)} = \frac{8 + 1}{2 + 1} = \frac{9}{3} = \boxed{3}$$

## End of Class

Write a summary of what you learned today:

What questions do you have about the material from today?

What do you need to do between now and the next class meeting?