Mathematics 122 Homework, January 17, 2025.

1. In Section 1.3, pages 28–29 Problems 1–5, 7, 10, 19, and 20.

Here are a few practice problems related to algebra that will be usful later.

2. Let $f(x) = 2x^2 - x$.

(a) Explain why the slope of line through $(2, f(2)$ and $(2 + h, f(2 + h))$ is

$$\frac{\Delta y}{\Delta x} = \frac{f(2 + h) - f(2)}{h}.$$

(b) Simplify $\dfrac{f(2 + h) - f(2)}{h}$ so that there is no h in the denominator.

3. Let $P(x) = 500(1.18)^t$.

(a) What is the change of P between 1 and 2?

(b) What is the average rate of change between 1 and 2?

(c) What is the relative change between 1 and 2?

(d) What is the relative change between t and $t + 1$?