

Section 1.2 HW

Please give complete, well written solutions to the following exercises.

1. Let $f(x) = m_1x + b_1$ and $g(x) = m_2x + b_2$. Show that $f \circ g$ is also a linear function. What is the slope of $f \circ g$?

2. Let

$$f_0(x) = \frac{1}{2-x}.$$

Define $f_{n+1}(x) = (f_0 \circ f_n)(x)$ where $n = 1, 2, 3, \dots$

- (a) Find formulas for f_1, f_2, f_3, f_4 .
- (b) Find an explicit formula for $f_n(x)$.
- (c) Graph f_0, f_1, f_2, f_3 on the same set of axis and describe the qualitative effect of repeated composition. Using a graphing calculator or an online resource such as www.wolframalpha.com can make this easier.