Quiz 1

1) Determine the average rate of change of the function between the given values of the variable. Simplify your answer.

$$f(t) = \frac{2}{t}; \quad t = a, \, t = a + h$$

$$\frac{f(a+h) - f(a)}{a + h - a} = \frac{\frac{2}{a+h} - \frac{2}{a}}{h}$$

$$= \frac{\frac{2a - 2(a+h)}{a(a+h)}}{h}$$

$$= \frac{\frac{2a - 2a - 2h}{a(a+h)}}{h}$$

$$= \frac{\frac{-2h}{a(a+h)}}{h}$$

$$= \frac{-2}{a(a+h)}$$

2) Sketch the graph of the following function by starting with the graph of a standard function and applying transformations. Draw a graph for each transformation and show at least three points on each graph.

$$y = -2\sqrt{x+4} + 3$$
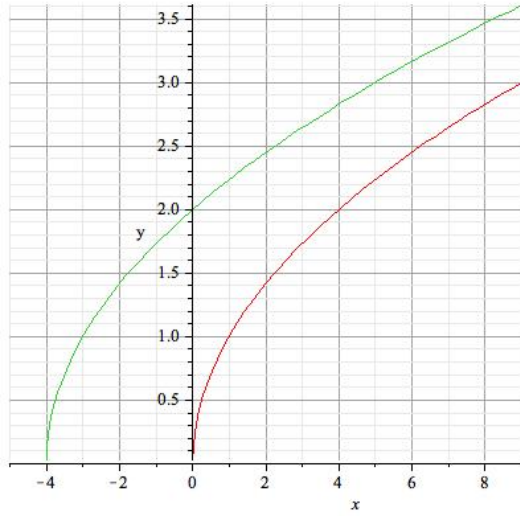
$$F_1(x) = \sqrt{x}$$
$$F_2(x) = \sqrt{x+4} \qquad\qquad\qquad\qquad \text{Left by 4}$$
$$F_3(x) = 2\sqrt{x+4} \qquad\qquad\qquad \text{Vertically Stretch by 2}$$
$$F_4(x) = -2\sqrt{x+4} \qquad\qquad\qquad \text{Reflect in the } x\text{-axis}$$
$$F_5(x) = -2\sqrt{x+4} + 3 \qquad\qquad\qquad \text{Up by 3}$$
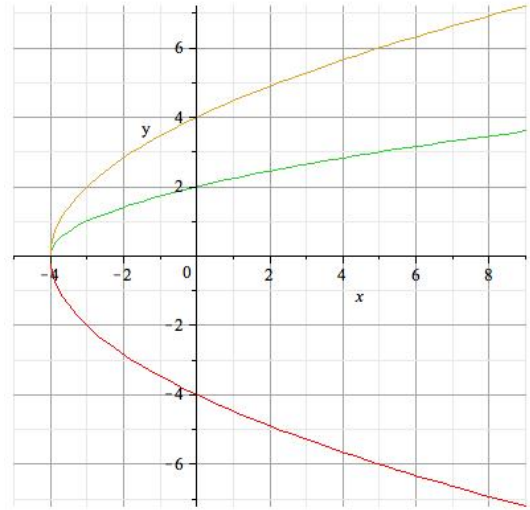
$F_1(x)$ and $F_2(x)$

$F_2(x)$, $F_3(x)$, and $F_4(x)$

$F_4(x)$ and $F_5(x)$.