

Quiz 1

1. $f(x)$ is the age of Antarctic ice (in hundreds of years) at a depth of x meters below the surface.
 - a. Would you expect $f(x)$ to be an increasing or decreasing function? Why.
 - b. Explain what " $f(10) = 15$ " means in practical terms.
 - c. Find the average rate of change when x ranges from 0 to 10. (Hint: What should $f(0)$ be?) Give units for your answer, and interpret the rate of change in practical terms.
 - d. If f is a linear function, what is the age of ice 20 meters below the surface.
 - e. (Bonus) If f is approximately linear, but slightly concave down, is your estimate in part d too high or too low. Draw a picture that explains your answer.

2. On the back of this page, draw rough sketches of the graphs of the following pairs of functions on the interval where x ranges from 0 to 2. Show their shapes, and relative positions. The only points you need include are (1,1) and (0,0).
 - a. $f(x) = x^{1/2}$ and $g(x) = x^{7/8}$
 - b. $f(x) = 1/x$ and $g(x) = 1/x^2$