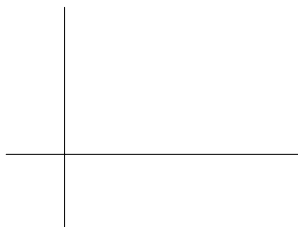
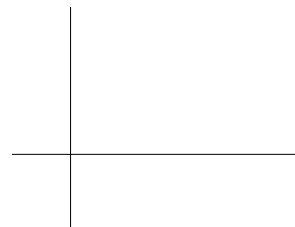


1. As you travel at a constant speed from Tucson to Bisbee, you pass through Benson. Bisbee is 94 miles from Tucson and Benson is 40 miles from Tucson. Sketch graphs to represent the functions below. Label the axes and any important features of your graphs.

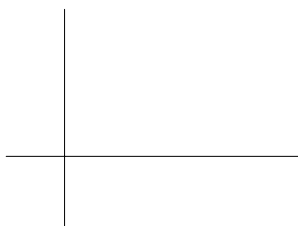
A. distance from Tucson as a function of time



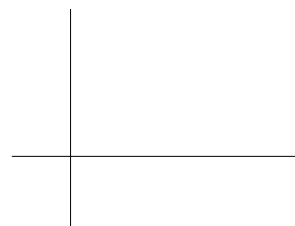
B. distance from Benson as a function of time



C. distance from Bisbee as a function of time



D. speed as a function of distance



2. Suppose the rate,  $R$ , at which people in a particular town hear a rumor is proportional to the number of people who have not heard the rumor. Let  $L$  be the total population of the town.

A. Write a formula for  $R$  as a function of  $t$ . Include the sign of the proportionality constant.

B. Find the vertical intercept and the slope.

3. Use the graph at the right to find the following.

A. Find  $f(0)$ .

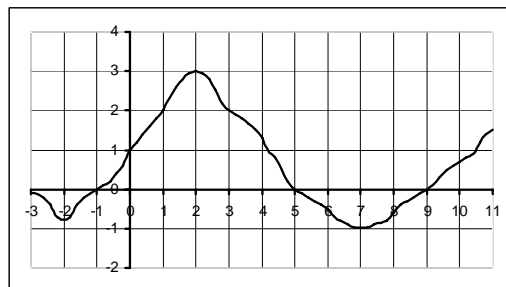
B. On what intervals is  $f(x)$  increasing?

C. Find  $x$  so that  $f(x) = 2$ .

D. For what value is  $f(x) = x$ ?

E. Find the zeros of  $f(x)$ .

F. Find  $f(f(7))$ .



4. The relationship between the tuition,  $T$ , and the number of credits,  $c$ , at a particular college is given by

$$T(c) = \begin{cases} 100 + 220c & 0 \leq c \leq 6 \\ 800 + 220(c - 6) & 6 < c \leq 18 \end{cases}$$

A. What is the tuition for 7 credits?

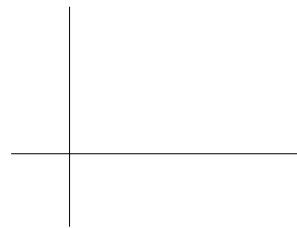
B. If the tuition was \$3000, how many credits were taken?

C. What is the domain of this function?

D. Give a practical interpretation of the vertical intercept.

E. Give a practical interpretation of the slope.

5. Sketch  $H(\alpha) = H_o(1 - \alpha \cdot \Delta t)$ . Label the axes and the intercepts clearly. The constants are positive.



6. Solve  $g(y) = 5$  for  $g(y) = \sqrt{y^2 - 16^2}$ .

7. Find the domain and range of  $f(x) = \left| \frac{9 - x^2}{x + 3} \right|$ .