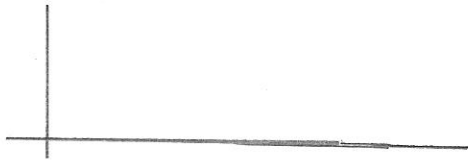


1. As you travel at a constant speed from Tucson to Bisbee, you pass through Benson. Sketch possible graphs to represent the functions below. LABEL THE AXES AND IMPORTANT FEATURES OF YOUR GRAPHS.

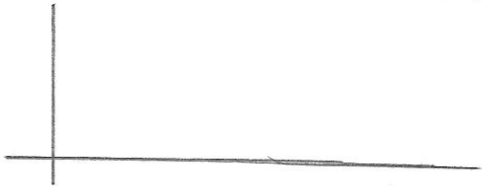
(a) Distance from Tucson as a function of time:



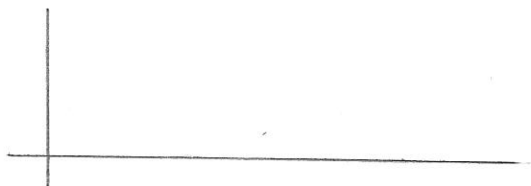
(c) Distance from Benson as a function of time:



(b) Distance from Bisbee as a function of time:



(d) Speed as a function of distance:



2. Use the graph at the right to answer the following _____ the domain is $[-3, 11]$.

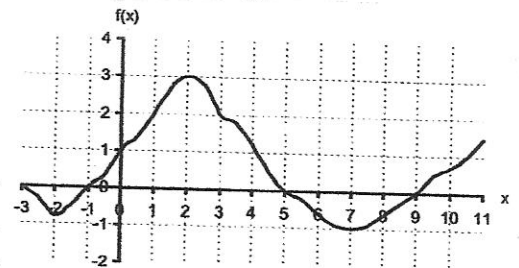
(a) What is the value of $f(0)$? _____

(b) What is the range of $f(x)$? _____

(c) What is(are) the zero(s) of $f(x)$? _____

(d) On what interval(s) is $f(x)$ increasing? _____

(e) Find the value(s) of x so that $f(x) = 2$? _____



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

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

SHOW WORK OR GIVE AN EXPLANATION FOR EACH ANSWER.

(a) What is the tuition for 7 credits?

(b) If the tuition was \$3000, how many credits were taken?

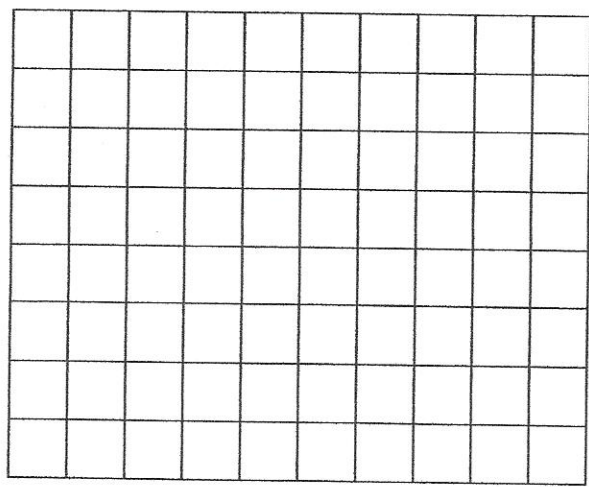
(c) In a complete sentence, give a practical interpretation of the vertical intercept.

(d) In a complete sentence, give a practical interpretation of the slope.

4. Solve $g(y) = 5$ for $g(y) = \sqrt{y^2 - 16}$. SHOW ALL WORK; GIVE EXACT ANSWER.

5. Let $H(x) = H_0(1 - \alpha \cdot \Delta t)$. The constants are positive.
- (a) What is the independent variable? _____
 - (b) What is the dependent variable? _____
 - (c) What are the constants? _____
 - (d) Re-write the given equation so that it is in the form $y = mx + b$. _____

(e) Graph this function neatly and accurately. Label the axes and the intercepts clearly.



6. (a) Find the domain of $f(t) = \frac{t+6}{t^2+3t-18}$ SHOW ALL WORK.

(b) Create a function that has a domain of $(4, \infty)$.

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7. Gasoline is being pumped into a tank at a constant rate (cubic feet per minute). A graph of the height of the gasoline in the tank as a function of time is shown. You can assume that the tank was initially empty and that the tank will be filled. Draw a possible shape of the tank. Label your graph.

