

Section 7.1 HW

Graph the following Step Functions on Graph Paper:

$$1. \quad f(x) = \begin{cases} 5 & -2 \leq x < 0 \\ 3 & \text{if } 0 \leq x < 2 \\ 1 & 2 \leq x < 4 \end{cases}$$

$$2. \quad t(x) = \begin{cases} 8 & 0 \leq x < 3 \\ 5 & \text{if } 3 \leq x < 6 \\ 2 & 6 \leq x < 9 \end{cases}$$

$$3. \quad g(x) = \begin{cases} 7 & -5 \leq x < -1 \\ 3 & \text{if } -1 \leq x < 3 \\ -1 & 3 \leq x < 7 \end{cases}$$

Directions: *Model the situations described below using a graph.*

4. Suppose that it costs 50 cents for the first minute of a long distance telephone call and 20 cents for each additional minute or fraction thereof. Give a graphical model of the cost of a call lasting t minutes.

Input (time in minutes, t)	Output (cost in cents) $C(t)$
$0 < t$ and $t \leq 1$	50
$1 < t$ and $t \leq 2$	$50 + 20(1) = 70$
$2 < t$ and $t \leq 3$	
$3 < t$ and $t \leq 4$	

Write a step-function to model this situation and graph the step function.

For problems 5-7, graph the first four intervals of the described step function. Label axes and numerical values/scale on axes.

5. It costs \$1.40 for the first minute of a phone call to Paris, France, and \$0.80 for each additional minute or fraction thereof.

(On your own graph paper) write the step function and draw the graph that models this cost.

6. At a city garage, it costs \$4 to park for the first hour and \$2 for each additional hour or fraction thereof. The fee is a function of the time parked.

Write a step function and sketch the graph that models this parking fee (on your own graph paper).

7. A taxicab driver charges \$2.00 for the first half mile and \$0.40 for each additional quarter mile. The fare is a function of the distance traveled.

Write a step function and sketch the graph that models this fare (on your own graph paper).