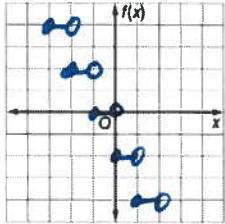


### 3-7 Practice Piecewise and Step Functions

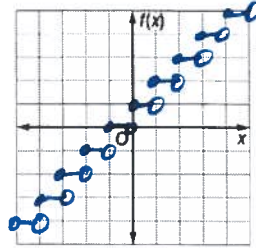
Graph each function. State the domain and range.

1.  $f(x) = -2 \llbracket x + 1 \rrbracket$



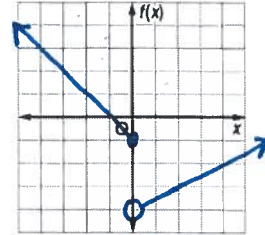
D = All Reals  
R = All Multiples of 2

2.  $f(x) = \llbracket x + 3 \rrbracket - 2$



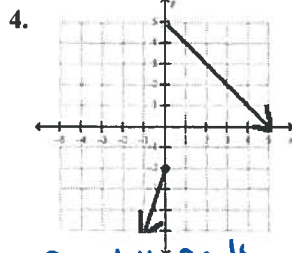
D = All Reals  
R = All Integers

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

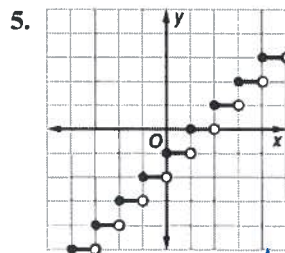


D = All Reals  
R =  $y > -4$

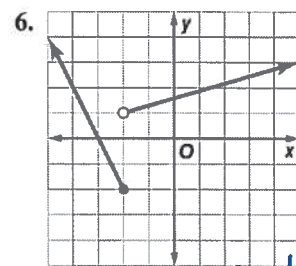
Determine the domain and range of each function.



D = All Reals  
R =  $y < 5$



D = All Reals  
R = All Integers



D = All Reals  
R =  $y \geq -2$

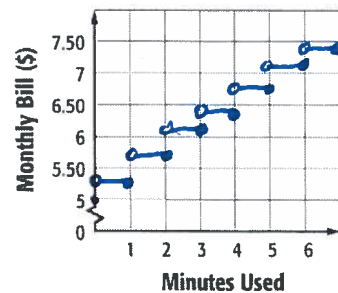
7. **CELL PHONES** Jacob's cell phone service costs \$5 each month plus \$0.35 for each minute he uses. Every fraction of a minute is rounded up to the next minute.

- Draw a graph to represent the cost of using the cell phone.
- What is Jacob's monthly bill if he uses 124.8 minutes?

↓  
Round Up

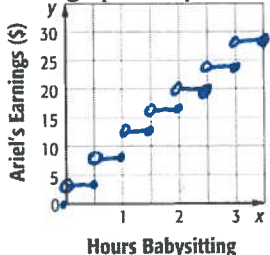
$$.35(125) + 5$$

$$\text{\$ } 48.75$$

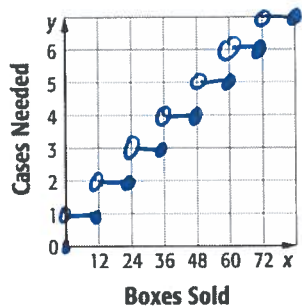


### 3-7 Word Problem Practice *Piecewise and Step Functions*

1. **BABYSITTING** Ariel charges \$8 per hour as a babysitter. She rounds every fraction of an hour up to the next half-hour. Draw a graph to represent Ariel's total earnings  $y$  after  $x$  hours.



2. **FUNDRAISING** Students are selling boxes of cookies at a fund-raiser. The boxes of cookies can only be ordered by the case, with 12 boxes per case. Draw a graph to represent the number of cases needed  $y$  when  $x$  boxes of cookies are sold.



5. **WAGES** Kelly earns \$8 per hour the first 8 hours she works in a day and \$11.50 per hour each hour thereafter.

a. Organize the information into a table. Include a row for hours worked  $x$ , and a row for daily earnings  $f(x)$ .

$x$	0	4	8	12	16
$f(x)$	0	32	64	110	156

b. Write the piecewise equation describing Kelly's daily earnings  $f(x)$  for  $x$  hours.

$$f(x) = \begin{cases} 8x & x \leq 8 \\ 64 + 11.5(x-8) & x > 8 \end{cases}$$

c. Draw a graph to represent Kelly's daily earnings.

