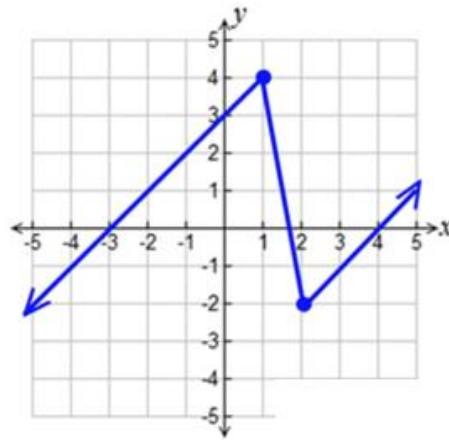


1. Which of the function definitions shown below will produce the graph below?



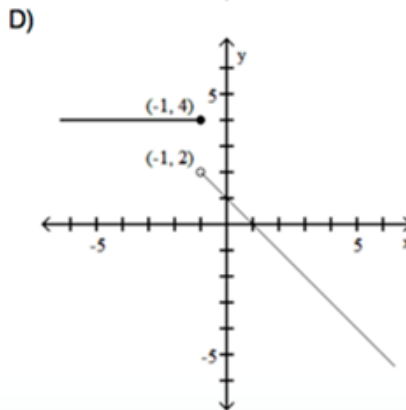
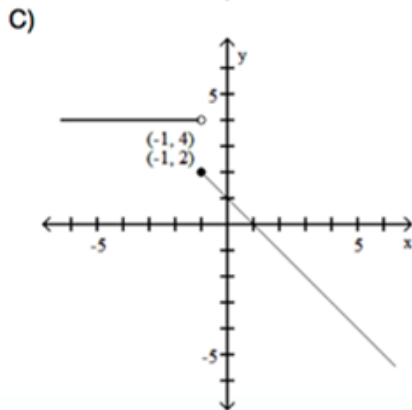
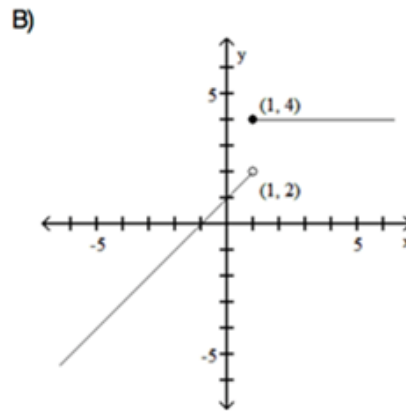
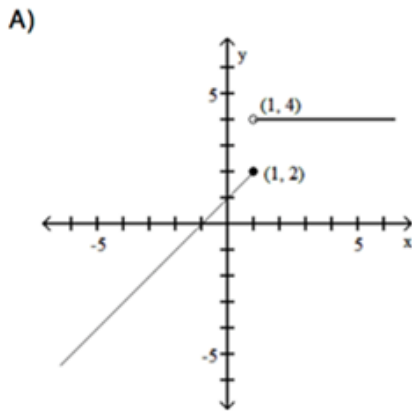
a)
$$r(x) = \begin{cases} x+3; & -\infty < x < 1 \\ -3x+5; & 1 \leq x \leq 2 \\ x+4; & 2 < x < \infty \end{cases}$$

b)
$$g(x) = \begin{cases} x-3; & -\infty < x < 1 \\ 6x+10; & 1 \leq x \leq 2 \\ x+4; & 2 < x < \infty \end{cases}$$

c)
$$f(x) = \begin{cases} x+3; & -\infty < x < 1 \\ -6x+10; & 1 \leq x \leq 2 \\ x-4; & 2 < x < \infty \end{cases}$$

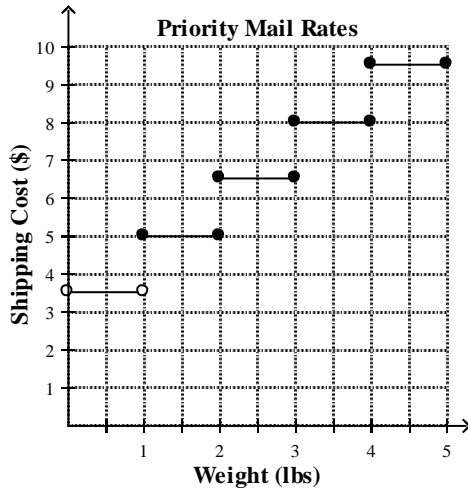
d)
$$h(x) = \begin{cases} -x+3; & -\infty < x < 1 \\ 3x+5; & 1 \leq x \leq 2 \\ -x+4; & 2 < x < \infty \end{cases}$$

2. Given the equation $f(x) = \begin{cases} x+1, & \text{if } x < 1 \\ 4, & \text{if } x \geq 1 \end{cases}$, determine its graph.

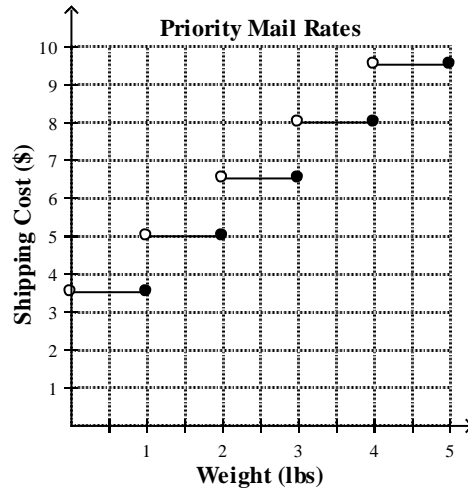


3. A shipping company charges \$3.50 to ship a package weighing one pound or less. Then they charge \$1.50 for each additional pound, or fraction of a pound, up to five pounds. Write a piecewise function that gives the price P for shipping a package weighing w pounds. Graph the function.

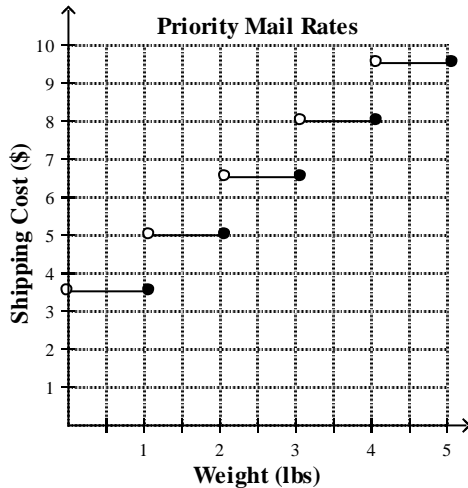
a.
$$P = \begin{cases} 3.5, & \text{if } 0 < x < 1 \\ 5, & \text{if } 1 \leq x \leq 2 \\ 6.5, & \text{if } 2 \leq x \leq 3 \\ 8, & \text{if } 3 \leq x \leq 4 \\ 9.5, & \text{if } 4 \leq x \leq 5 \end{cases}$$



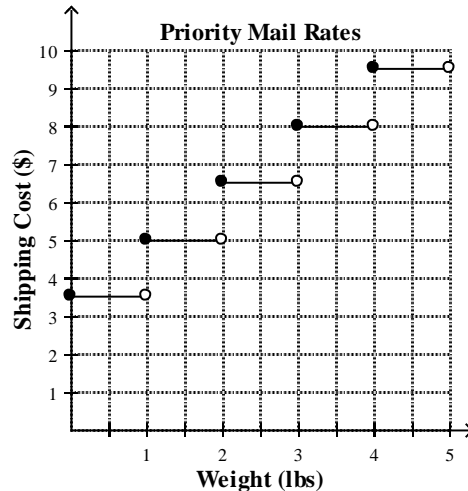
c.
$$P = \begin{cases} 3.5, & \text{if } 0 < x \leq 1 \\ 5, & \text{if } 1 < x \leq 2 \\ 6.5, & \text{if } 2 < x \leq 3 \\ 8, & \text{if } 3 < x \leq 4 \\ 9.5, & \text{if } 4 < x \leq 5 \end{cases}$$



b.
$$P = \begin{cases} 3.5, & \text{if } 0 < x \leq 1.1 \\ 5, & \text{if } 1.1 < x \leq 2.1 \\ 6.5, & \text{if } 2.1 < x \leq 3.1 \\ 8, & \text{if } 3.1 < x \leq 4.1 \\ 9.5, & \text{if } 4.1 < x \leq 5.1 \end{cases}$$



d.
$$P = \begin{cases} 3.5, & \text{if } 0 \leq x < 1 \\ 5, & \text{if } 1 \leq x < 2 \\ 6.5, & \text{if } 2 \leq x < 3 \\ 8, & \text{if } 3 \leq x < 4 \\ 9.5, & \text{if } 4 \leq x < 5 \end{cases}$$

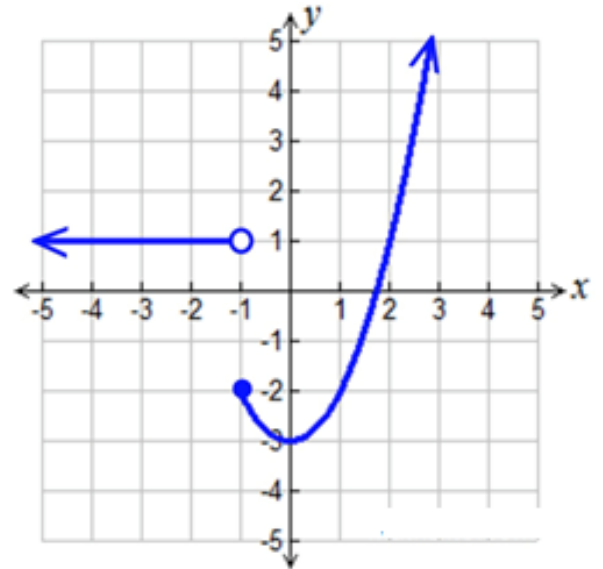


Use the graph below to answer questions #'s 4-7.

4. What is the domain in set builder notation?

5. What is the range in set builder notation?

6. Which function definition will produce this graph?



a) $r(x) = \begin{cases} -1; & -\infty < x < -1 \\ x^2 - 3; & -1 \leq x < \infty \end{cases}$

c) $g(x) = \begin{cases} 1; & -\infty < x < -1 \\ x^2 - 3; & -1 \leq x < \infty \end{cases}$

b) $t(x) = \begin{cases} x^2 - 3; & -\infty < x < -1 \\ 1; & -1 \leq x < \infty \end{cases}$

d) $s(x) = \begin{cases} 1; & -\infty < x < -1 \\ x^2 + 3; & -1 \leq x < \infty \end{cases}$

7. Find: a. $f(-1)$ b. $f(1)$ c. $f(0)$ d. $f(x) = -3$ e. $f(x) = -2$

8. Evaluate the function for the given value of x.

$$f(x) = \begin{cases} 3, & \text{if } x \leq 0 \\ 2, & \text{if } x > 0 \end{cases}$$

$$g(x) = \begin{cases} x + 5, & \text{if } x \leq 3 \\ 2x - 1, & \text{if } x > 3 \end{cases}$$

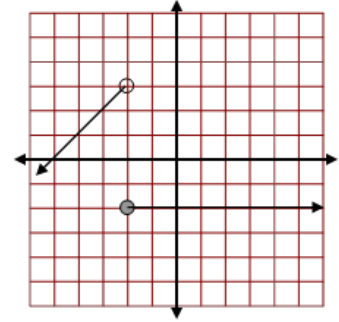
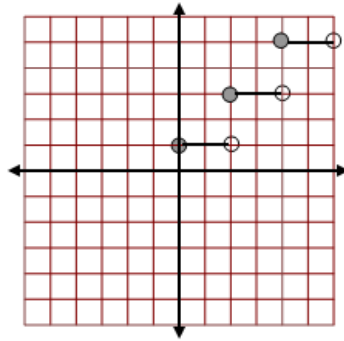
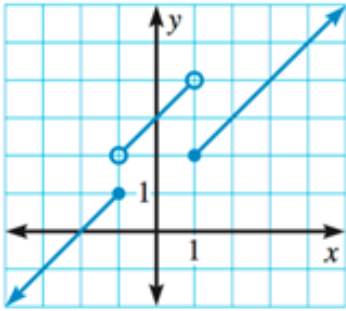
$$h(x) = \begin{cases} \frac{1}{2}x - 4, & \text{if } x \leq -2 \\ 3 - 2x, & \text{if } x > -2 \end{cases}$$

a. $f(2)$ b. $f(-2)$ c. $f(0)$ d. $f(\frac{1}{2})$

e. $g(7)$ f. $g(0)$ g. $g(-1)$ h. $g(3)$

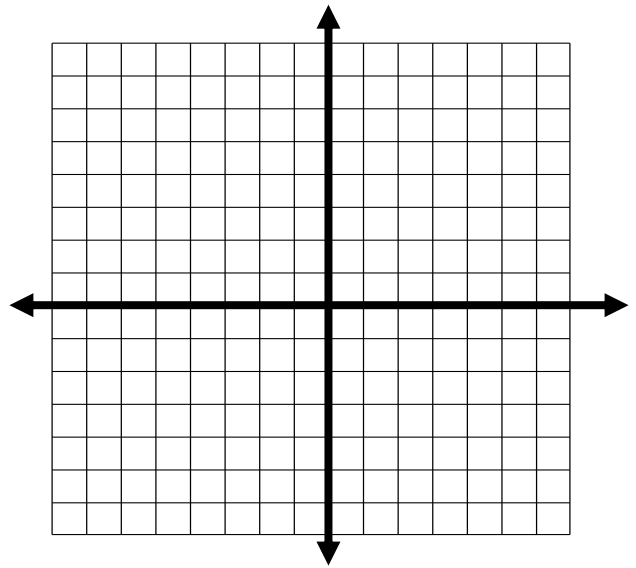
i. $h(-4)$ j. $h(-2)$ k. $h(-1)$ l. $h(6)$

9. State the piecewise function for each graph.



Graph each of the following.

10. $f(x) = \begin{cases} x + 3, & \text{if } x \leq 0 \\ 2x, & \text{if } x > 0 \end{cases}$



11. $f(x) = \begin{cases} x + 1, & \text{if } x < 0 \\ -x + 1, & \text{if } 0 \leq x \leq 2 \\ x - 1, & \text{if } x > 2 \end{cases}$

