

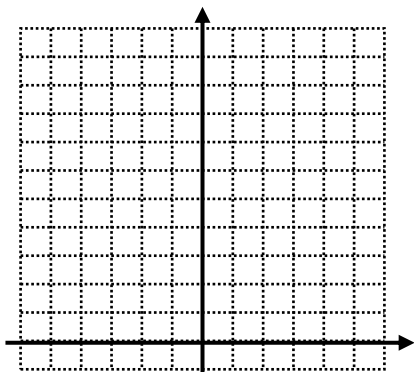
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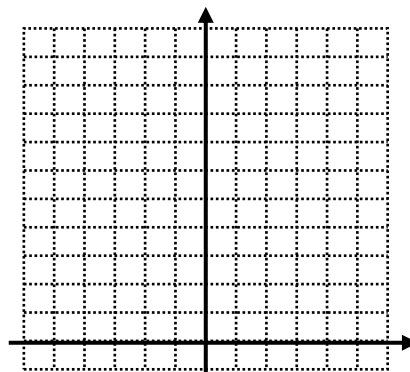
In Exercise 1 - 4, graph the function. Describe the domain and range using **set notation**.

1. 
$$y = \begin{cases} -4x & \text{if } x \leq 0 \\ 4 & \text{if } x > 0 \end{cases}$$



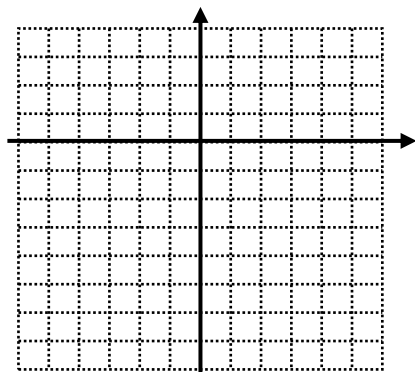
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2. 
$$y = \begin{cases} 4 - x & \text{if } x < 2 \\ x + 3 & \text{if } x \geq 2 \end{cases}$$



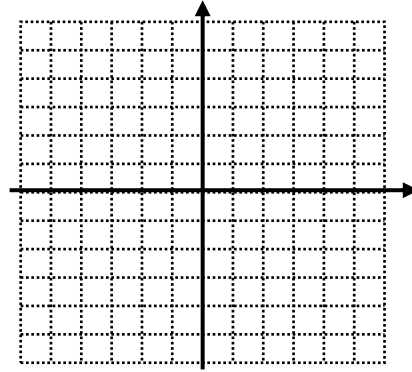
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3. 
$$y = \begin{cases} 2x & \text{if } x < -2 \\ 2 & \text{if } -2 \leq x < 2 \\ -2x & \text{if } x \geq 2 \end{cases}$$



D: \_\_\_\_\_ | R: \_\_\_\_\_

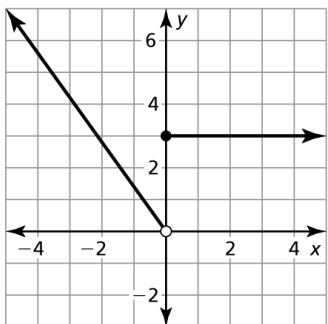
4. 
$$y = \begin{cases} -1 & \text{if } x \leq -1 \\ 0 & \text{if } -1 < x < 2 \\ 1 & \text{if } x \geq 2 \end{cases}$$



D: \_\_\_\_\_ | R: \_\_\_\_\_

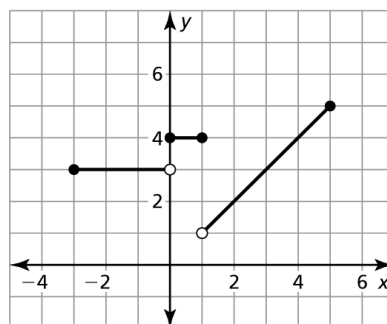
In Exercise 5 and 6, write a piecewise function for the graph.

5.



$$f(x) = \begin{cases} \underline{\hspace{2cm}} & \text{if } \underline{\hspace{2cm}} \\ \underline{\hspace{2cm}} & \text{if } \underline{\hspace{2cm}} \end{cases}$$

6.



$$g(x) = \begin{cases} \underline{\hspace{2cm}} & \text{if } \underline{\hspace{2cm}} \\ \underline{\hspace{2cm}} & \text{if } \underline{\hspace{2cm}} \\ \underline{\hspace{2cm}} & \text{if } \underline{\hspace{2cm}} \end{cases}$$

Match each piecewise with its graph.

7.

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

8.

$$f(x) = \begin{cases} x + 4 & \text{if } x \leq 0 \\ 2x + 4 & \text{if } x > 0 \end{cases}$$

9.

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

10.

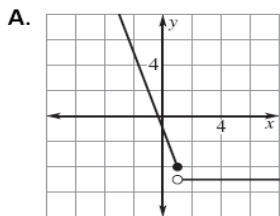
$$f(x) = \begin{cases} 2x + 3 & \text{if } x \geq 0 \\ x + 4 & \text{if } x < 0 \end{cases}$$

11.

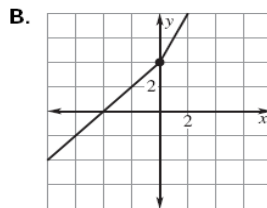
$$f(x) = \begin{cases} 3x - 1 & \text{if } x \geq -1 \\ -5 & \text{if } x < -1 \end{cases}$$

12.

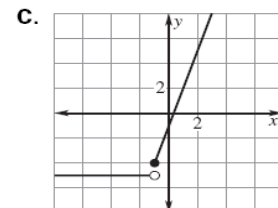
$$f(x) = \begin{cases} -3x - 1 & \text{if } x \leq 1 \\ -5 & \text{if } x > 1 \end{cases}$$



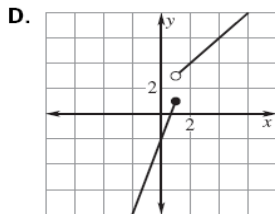
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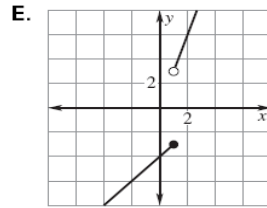
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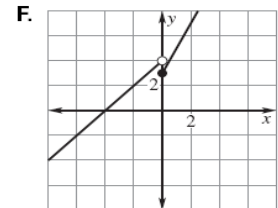
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Graph each function on a separate piece of graph paper. Be sure to include your tables with appropriate boundary notations.

13.

$$f(x) = \begin{cases} 2, & \text{if } x \leq -3 \\ -1, & \text{if } -3 < x < 3 \\ 3, & \text{if } x \geq 3 \end{cases}$$

14.

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

15.

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

16.

$$f(x) = \begin{cases} 2x + 4 & \text{if } -4 \leq x \leq 1 \\ 6 - x & \text{if } 1 < x \leq 5 \end{cases}$$

State the range of the function  $f(x)$ .