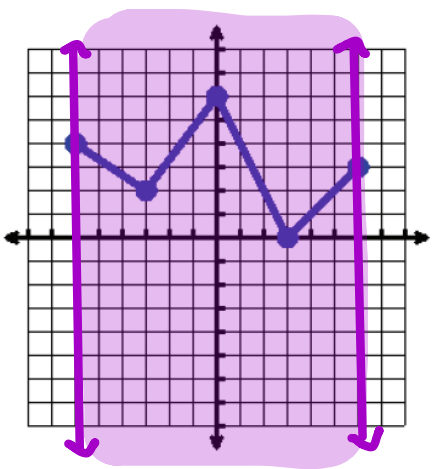
NAME: _____ PERIOD: _____ DATE: _____

Homework Problem Set

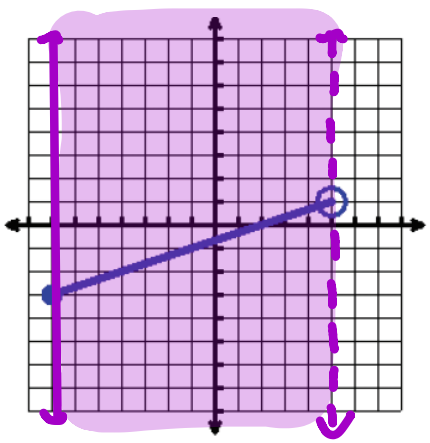
Shade the domain for each graph below. Then give the domain as an inequality and in interval notation.

Source: http://esbailey.cuipblogs.net/files/2015/09/Domain-Range-Matching.pdf

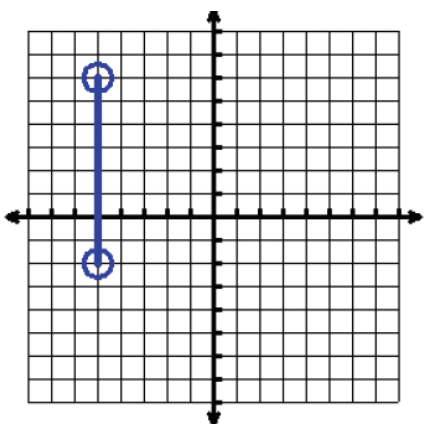
1. inequality: $-6 \leq x \leq 6$
   interval notation: $[-6, 6]$



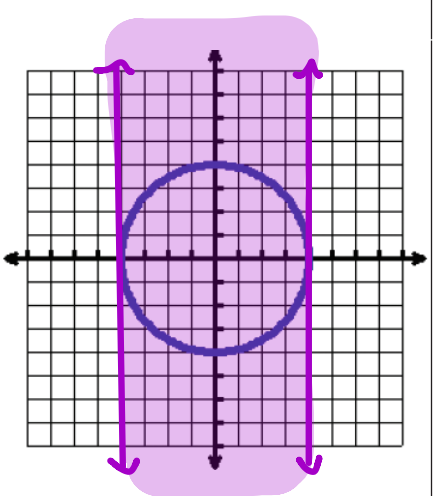
2. inequality: $-7 \leq x < 5$
   interval notation: $[-7, 5)$



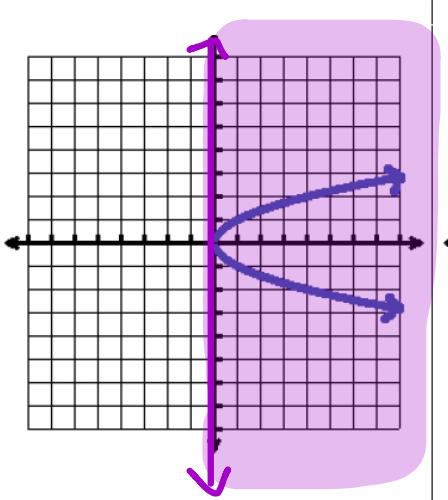
3. inequality: $x = -5$
   interval notation: $\{5\}$



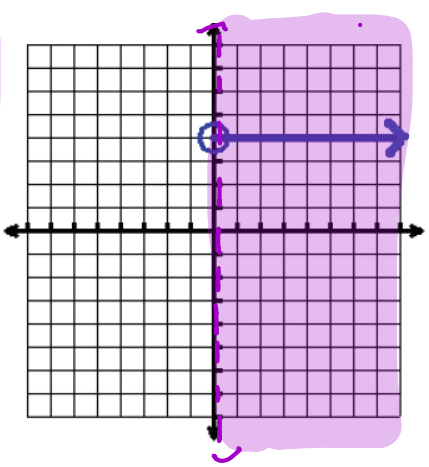
4. inequality: $-4 \leq x \leq 4$
   interval notation: $[-4, 4]$



5. inequality: $x \geq 0$
   interval notation: $[0, \infty)$



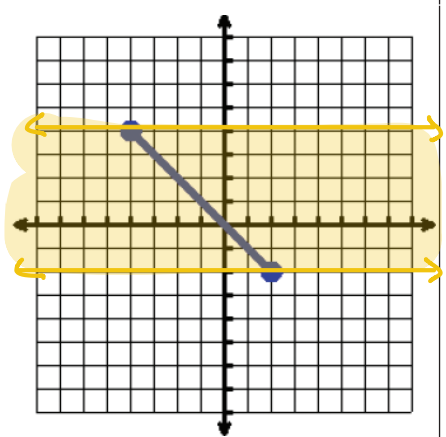
6. inequality: $x > 0$
   interval notation: $(0, \infty)$



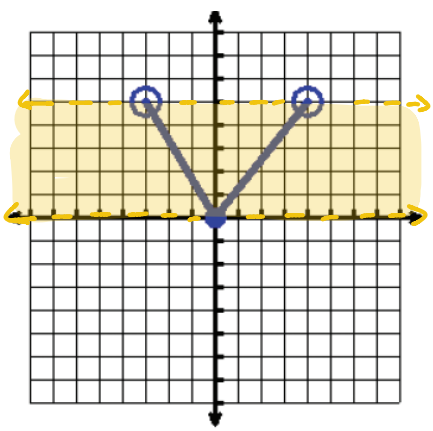
Shade the range for each graph below. Then give the range as an inequality and in interval notation.

Source: http://esbailey.cuipblogs.net/files/2015/09/Domain-Range-Matching.pdf

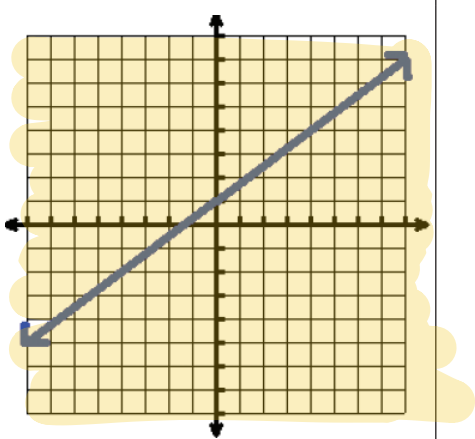
7. inequality: $-2 \le y \le 4$
interval notation: $[-2, 4]$



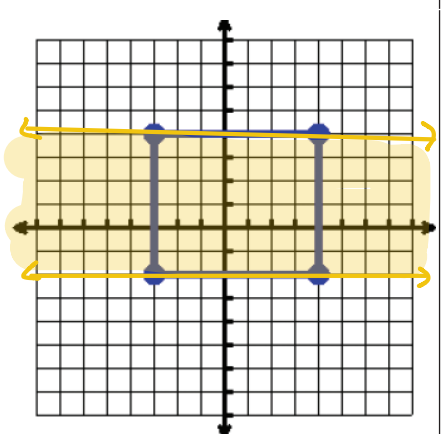
8. inequality: $0 \le y < 5$
interval notation: $[0, 5)$



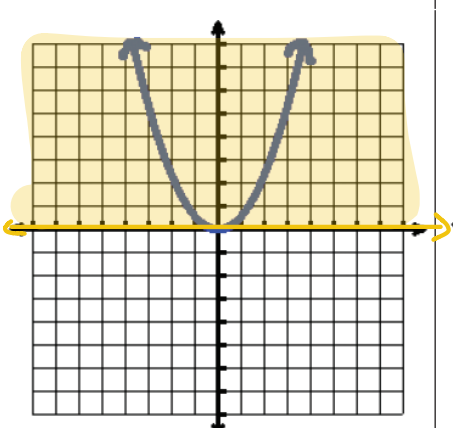
9. inequality: All Real #s
interval notation: $(-\infty, \infty)$



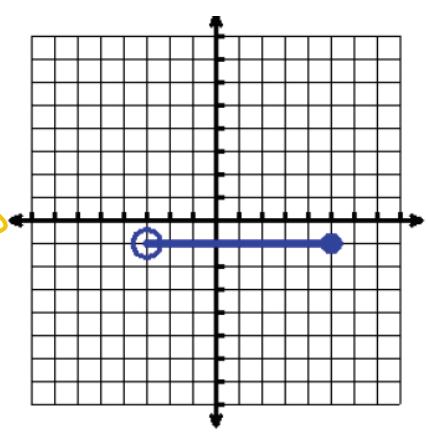
10. inequality: $-2 \le y \le 4$
interval notation: $[-2, 4]$



11. inequality: $y \ge 0$
interval notation: $[0, \infty)$



12. inequality: $y = -1$
interval notation: $\{-1\}$



Match each description to the correct graph.

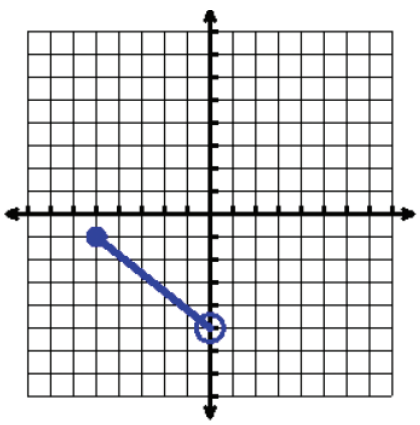
Source: http://esbailey.cuipblogs.net/files/2015/09/Domain-Range-Matching.pdf

13. B
Domain: $\{-6 \leq x \leq 3\}$
Range: $\{-5 \leq y \leq -1\}$

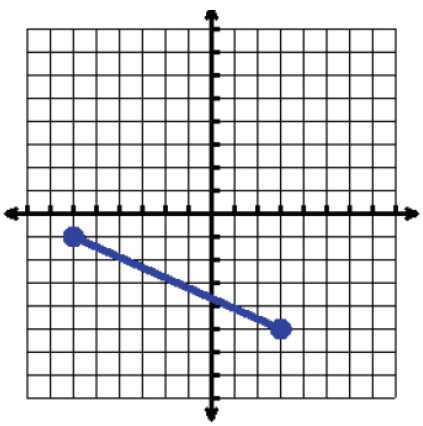
14. C
Domain: $\{0 \leq x \leq 6\}$
Range: $\{0 \leq y \leq 7\}$

15. A
Domain: $\{-5 \leq x < 0\}$
Range: $\{-5 < y \leq -1\}$

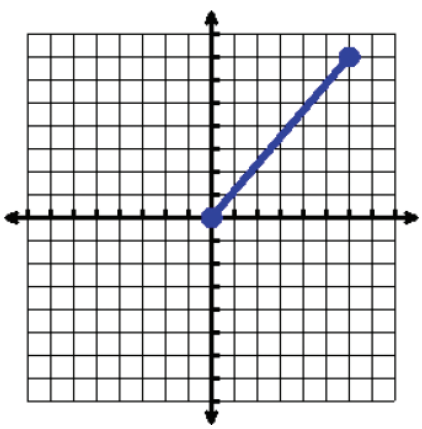
Graph A



Graph B

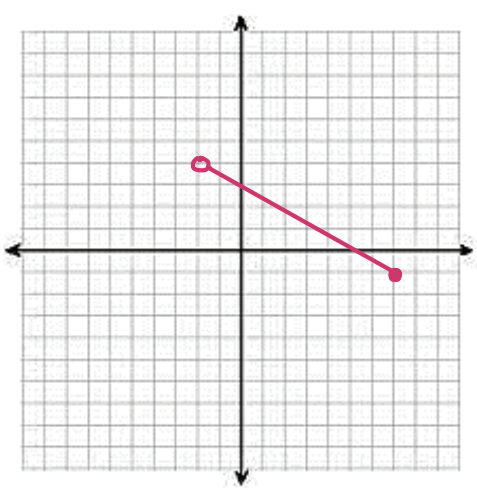


Graph C



16. **Open Ended** Draw a graph with a domain of $(-2, 6]$ and a range of $[-1, 5)$.

possible answer:



Spiral REVIEW—Writing Equations

17. A. Maya and Earl live at opposite ends of the hallway in their apartment building. Their doors are 50 ft. apart. Each starts at his or her own door and walks at a steady pace toward each other and stops when they meet.

Suppose that Maya walks at a constant rate of 2 ft. every second and Earl walks at a constant rate of 4 ft. every second starting from 50 ft. away. Create equations for each person's distance from Maya's door.

Let y = distance from Maya's door in feet
Let x = time in seconds

Maya's equation
$y = 2x$
Earl's equation
$y = 50 - 4x$

B. **Challenge** How far are they from Maya's door at this time?

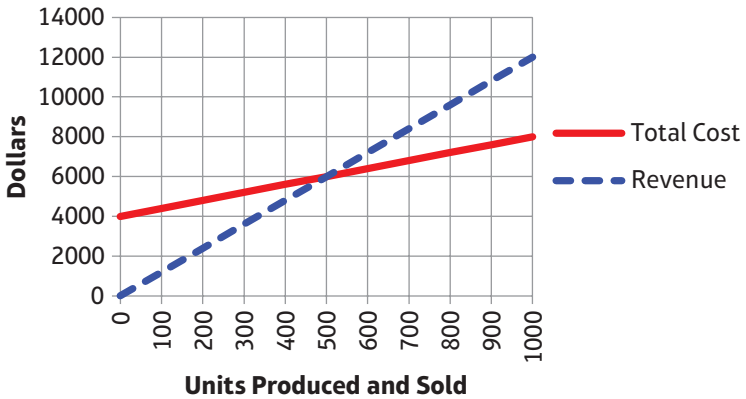
$2x = 50 - 4x$
$x = 8\frac{1}{3}$

The two meet at $16\frac{2}{3}$ ft from Maya's Door.

$y = 2x \Longrightarrow 2(8\frac{1}{3}) = 16\frac{2}{3}$

Spiral REVIEW—Interpreting Graphs and Points of Intersection

18. The graph at the right shows the revenue (or income) a company makes from designer coffee mugs and the total cost (including overhead, maintenance of machines, etc.) that the company spends to make the coffee mugs.



A. How are revenue and total cost related to the number of units of coffee mugs produced?

Profit = Revenue − Total Cost

Revenue = income from sales
Total cost = cost to make mugs (materials, rent, salaries)

B. What is the meaning of the point (0,4000) on the total cost line?

(0, 4000) ⟶ the initial cost of making coffee mugs (prior to sale of any mugs.

C. What are the coordinates of the intersection point? What is the meaning of this point in this situation?

(500, 6000) ⟹ break even point

The revenue is $6000 for selling 500 mugs. You will begin making a profit after this point.