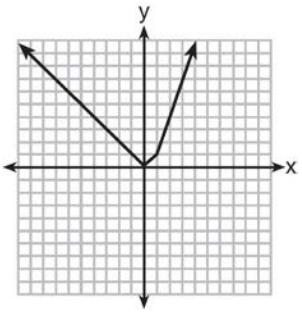
Name: _____

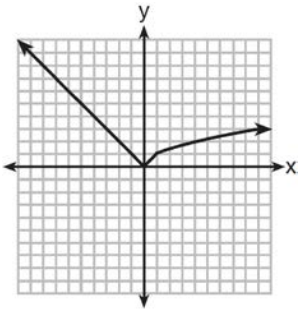
F.IF.C.7: Graphing Piecewise-Defined Functions

1 Which graph represents $f(x) = \begin{cases} |x| & x < 1 \\ \sqrt{x} & x \geq 1 \end{cases}$?

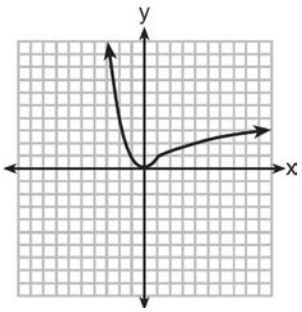
1)



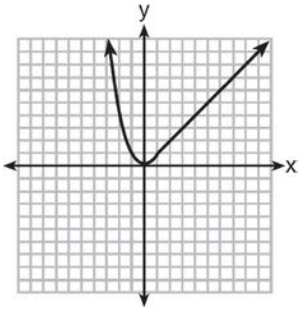
2)



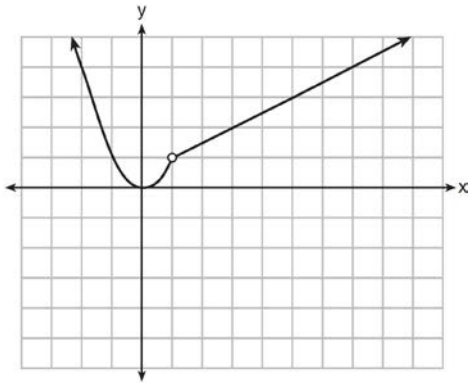
3)



4)



2 A function is graphed on the set of axes below.



Which function is related to the graph?

1) $f(x) = \begin{cases} x^2, x < 1 \\ x - 2, x > 1 \end{cases}$

2) $f(x) = \begin{cases} x^2, x < 1 \\ \frac{1}{2}x + \frac{1}{2}, x > 1 \end{cases}$

3) $f(x) = \begin{cases} x^2, x < 1 \\ 2x - 7, x > 1 \end{cases}$

4) $f(x) = \begin{cases} x^2, x < 1 \\ \frac{3}{2}x - \frac{9}{2}, x > 1 \end{cases}$

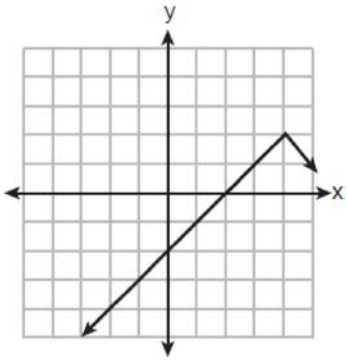
3 When the function $g(x) = \begin{cases} 5x, x \leq 3 \\ x^2 + 4, x > 3 \end{cases}$ is graphed correctly, how should the points be drawn on the graph for an x-value of 3?

1) open circles at $(3,15)$ and $(3,13)$
2) closed circles at $(3,15)$ and $(3,13)$
3) an open circle at $(3,15)$ and a closed circle at $(3,13)$
4) a closed circle at $(3,15)$ and an open circle at $(3,13)$

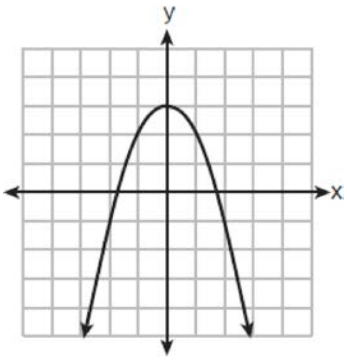
Name: _____

4 Which graph below represents a function that is always *decreasing* over the entire interval $-3 < x < 3$?

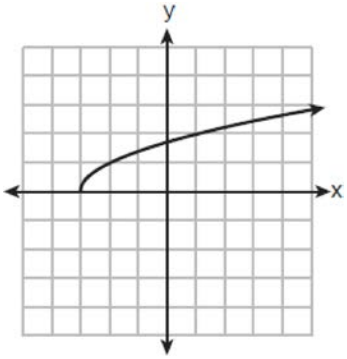
1)



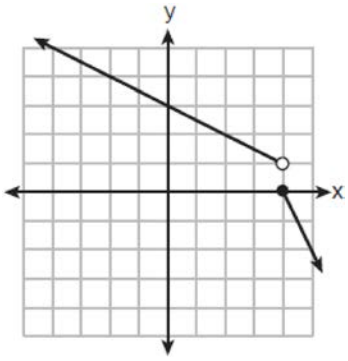
2)



3)

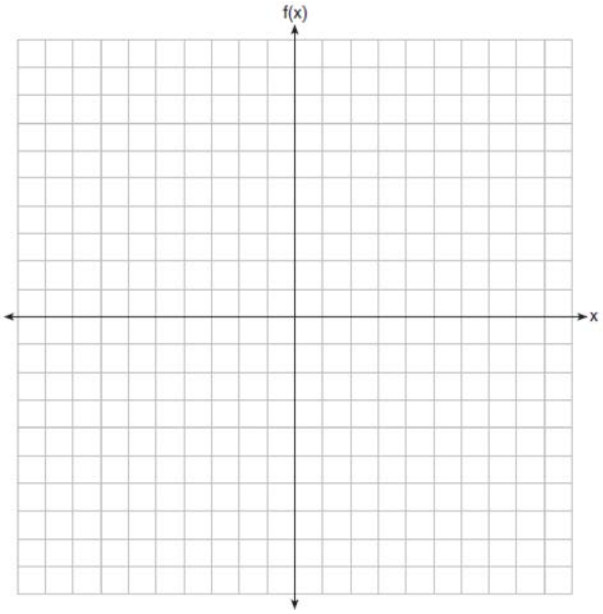


4)



5 On the set of axes below, graph the piecewise function:

$$f(x) = \begin{cases} -\frac{1}{2}x, & x < 2 \\ x, & x \geq 2 \end{cases}$$



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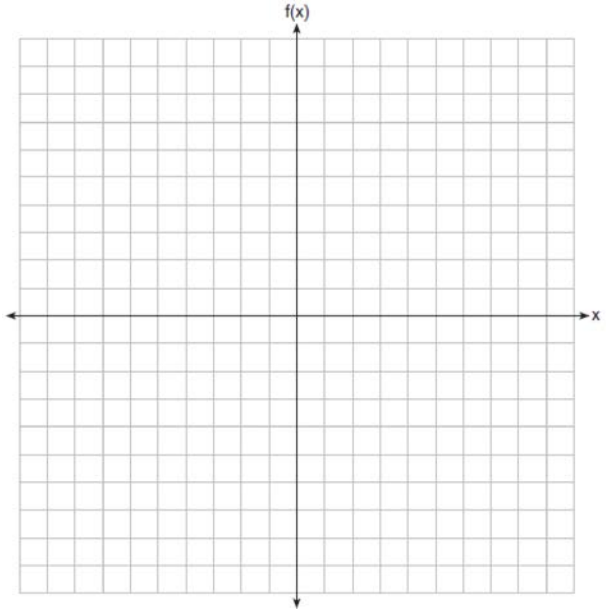
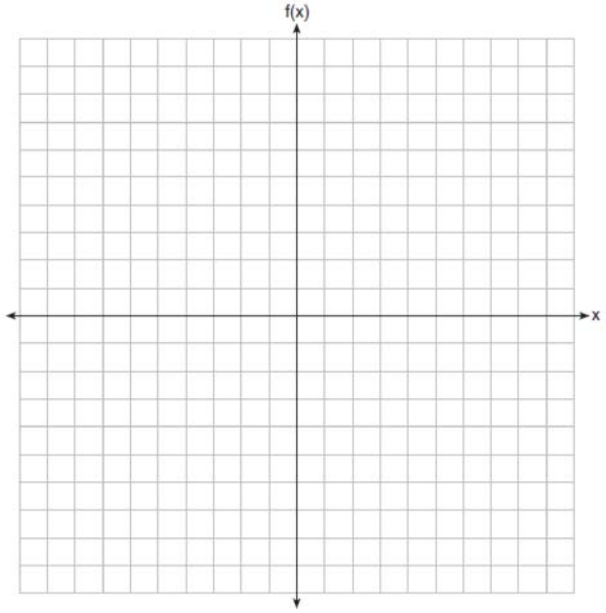
6 Graph the following function on the set of axes below.

$$f(x) = \begin{cases} |x|, & -3 \le x < 1 \\ 4, & 1 \le x \le 8 \end{cases}$$



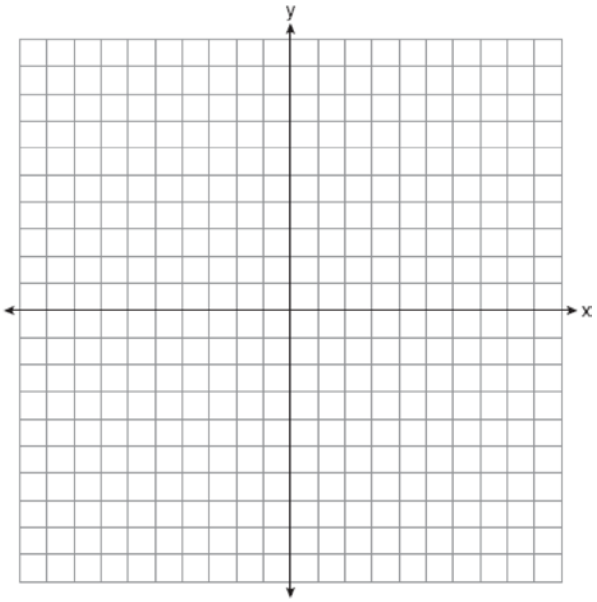
7 Graph the following piecewise function on the set of axes below.

$$f(x) = \begin{cases} |x|, & -5 \le x < 2 \\ -2x + 10, & 2 \le x \le 6 \end{cases}$$



Name: _____

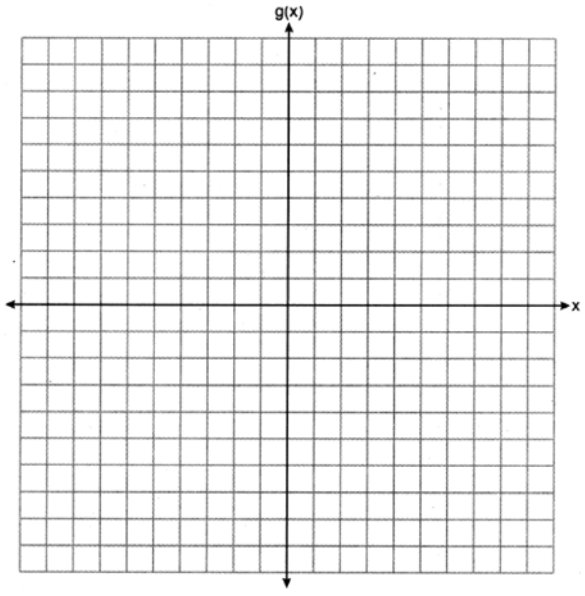
8 Graph the function: $h(x) = \begin{cases} 2x - 3, & x < 0 \\ x^2 - 4x - 5, & 0 \le x \le 5 \end{cases}$



9 The function g is defined as

$$g(x) = \begin{cases} |x + 3|, & x < -2 \\ x^2 + 1, & -2 \le x \le 2 \end{cases}$$

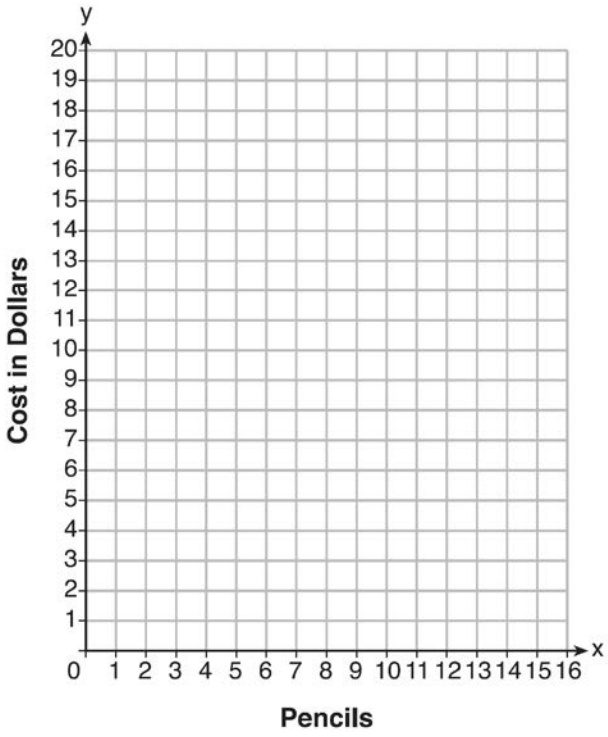
On the set of axes below, graph $g(x)$.



10 At an office supply store, if a customer purchases fewer than 10 pencils, the cost of each pencil is \$1.75. If a customer purchases 10 or more pencils, the cost of each pencil is \$1.25. Let c be a function for which $c(x)$ is the cost of purchasing x pencils, where x is a whole number.

$$c(x) = \begin{cases} 1.75x, \text{ if } 0 \le x \le 9 \\ 1.25x, \text{ if } x \ge 10 \end{cases}$$

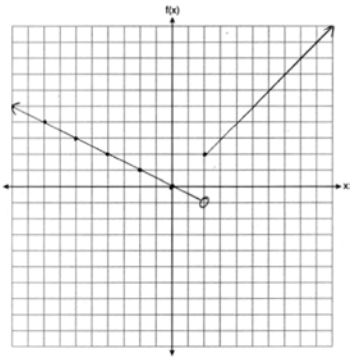
Create a graph of c on the axes below.



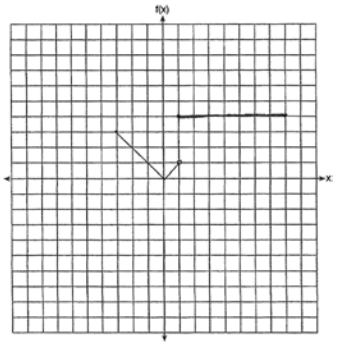
A customer brings 8 pencils to the cashier. The cashier suggests that the total cost to purchase 10 pencils would be less expensive. State whether the cashier is correct or incorrect. Justify your answer.

F.IF.C.7: Graphing Piecewise-Defined Functions
Answer Section

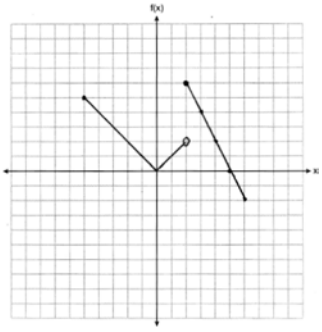
1 ANS: 2 REF: 081516ai
2 ANS: 2 REF: 081422ai
3 ANS: 4 REF: 081815ai
4 ANS: 4 REF: 012524ai
5 ANS:



REF: 061832ai
6 ANS:

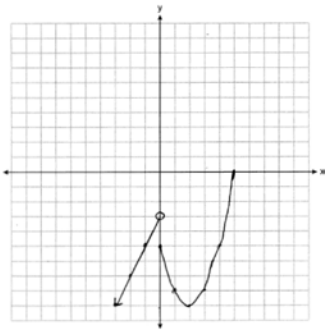


REF: 011530ai
7 ANS:



REF: 061927ai

8 ANS:



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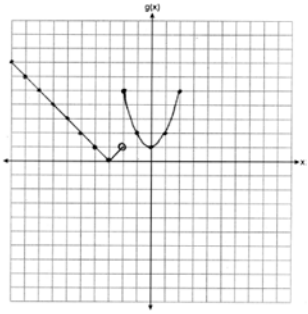
9 ANS:



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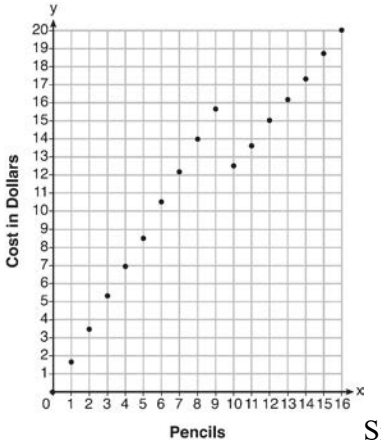
10 ANS:



Since according to the graph, 8 pencils cost $14 and 10 pencils cost $12.50, the cashier is correct.

REF: fall1312ai