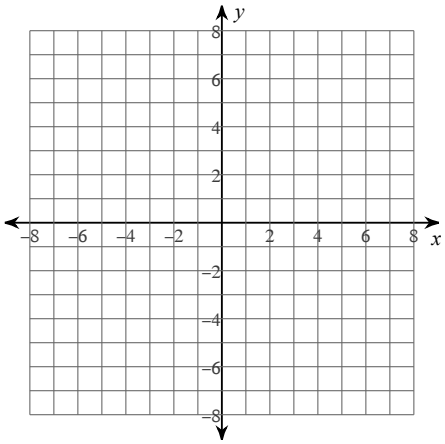
Secondary Math 2 Name_____

8.4 Piecewise Functions

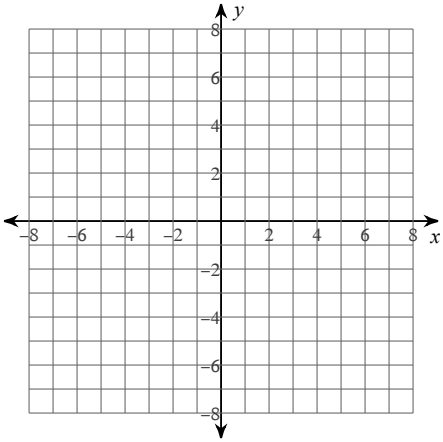
Date_____ Period____

Sketch the graph of each function.

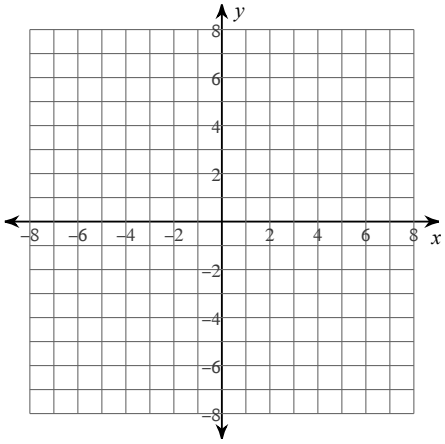
1) $f(x) = \begin{cases} -|x|, & x < -1 \\ 4 - x^2, & x \geq 0 \end{cases}$



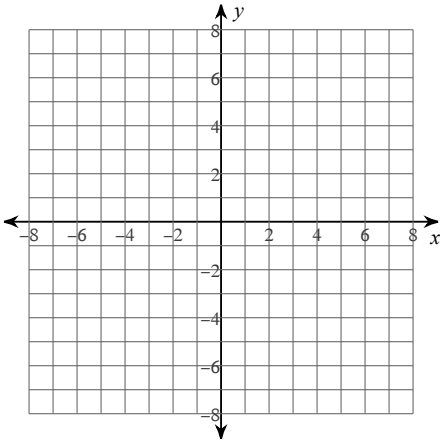
2) $f(x) = \begin{cases} 2x + 2, & x \leq 0 \\ (x-2)^2, & 0 < x < 4 \\ -5, & x \geq 4 \end{cases}$



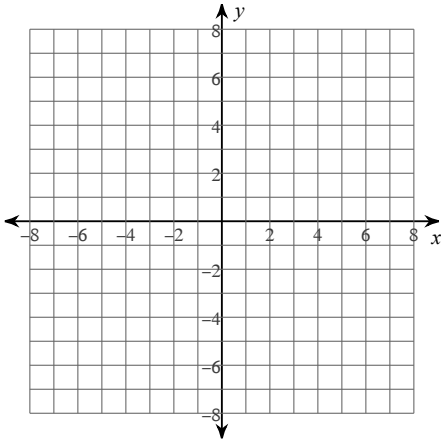
3) $f(x) = \begin{cases} -4, & x < -2 \\ -1, & -2 \leq x \leq 3 \\ |x| - 3, & x > 3 \end{cases}$



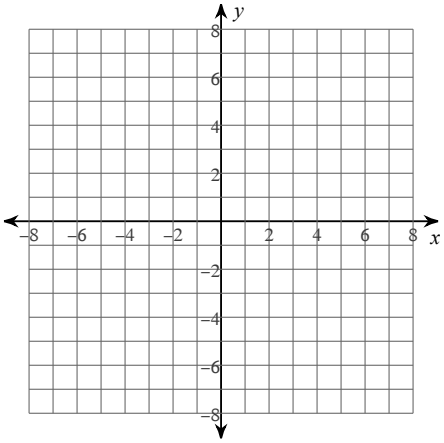
4) $f(x) = \begin{cases} x - 3, & x \leq -1 \\ -x + 2, & -1 < x \leq 4 \\ (x-4)^2, & x > 4 \end{cases}$



5) $f(x) = \begin{cases} -|x|, & x \le -3 \\ 4 - x^2, & -3 < x \le 2 \\ x, & x > 2 \end{cases}$

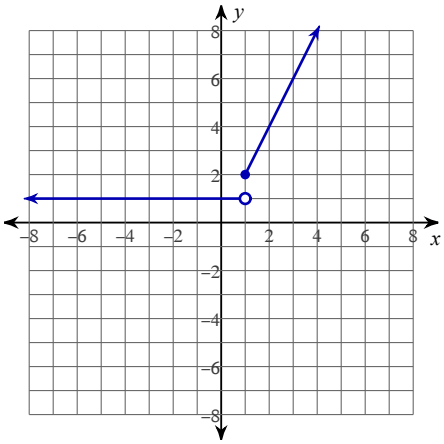


6) $f(x) = \begin{cases} (x+4)^2, & x < -4 \\ |x+2|, & -4 \le x < 4 \\ 2, & x \ge 4 \end{cases}$



Write the equation and domain for each piecewise function.

7)



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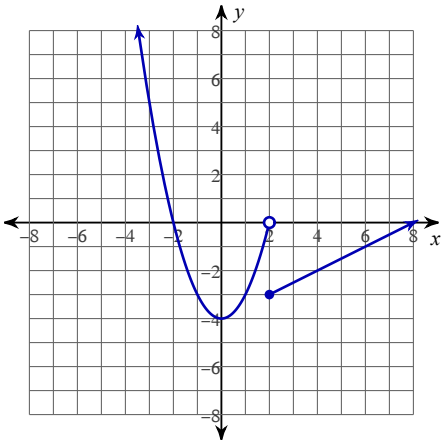

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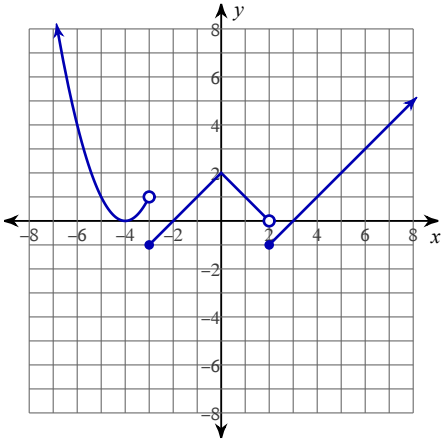

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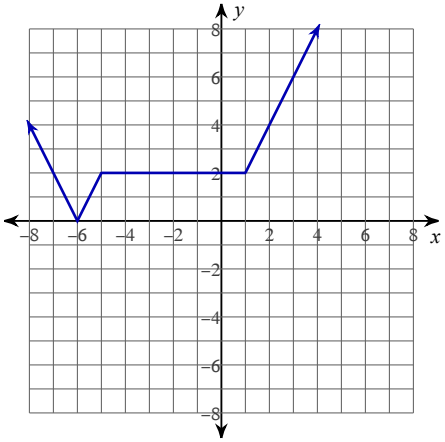


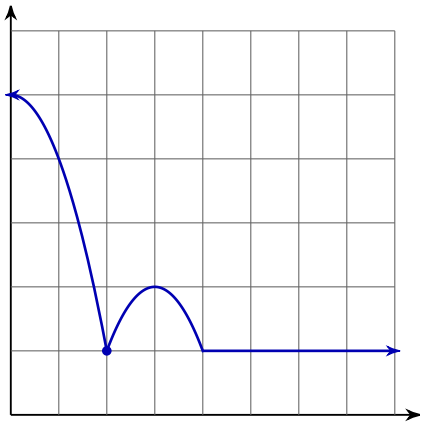
Sketch a graph that could model each situation.

11) Steven is driving to the store. He stops at a light half way there. He arrives and finds the store is closed so he goes home.

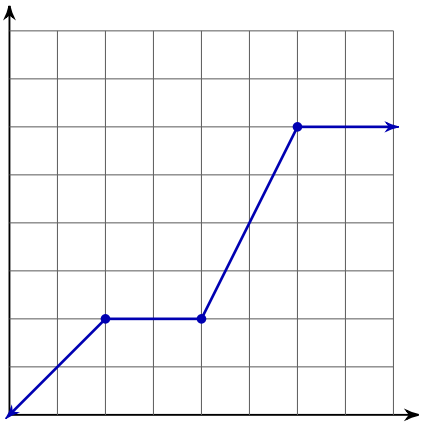
12) Every time Samantha trains for a 5k race she starts with a 5 min sprint, then jogs for 20 min, and then walks for 5 min.

Write a situation that could be modeled by the graph.

13)



14)



For each problem, find the average rate of change of the function over the given interval.

15) $f(x) = x^2 + 1; \quad [-2, 0]$

16) $f(x) = -2x^2 + 1; \quad [-2, 0]$