

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

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

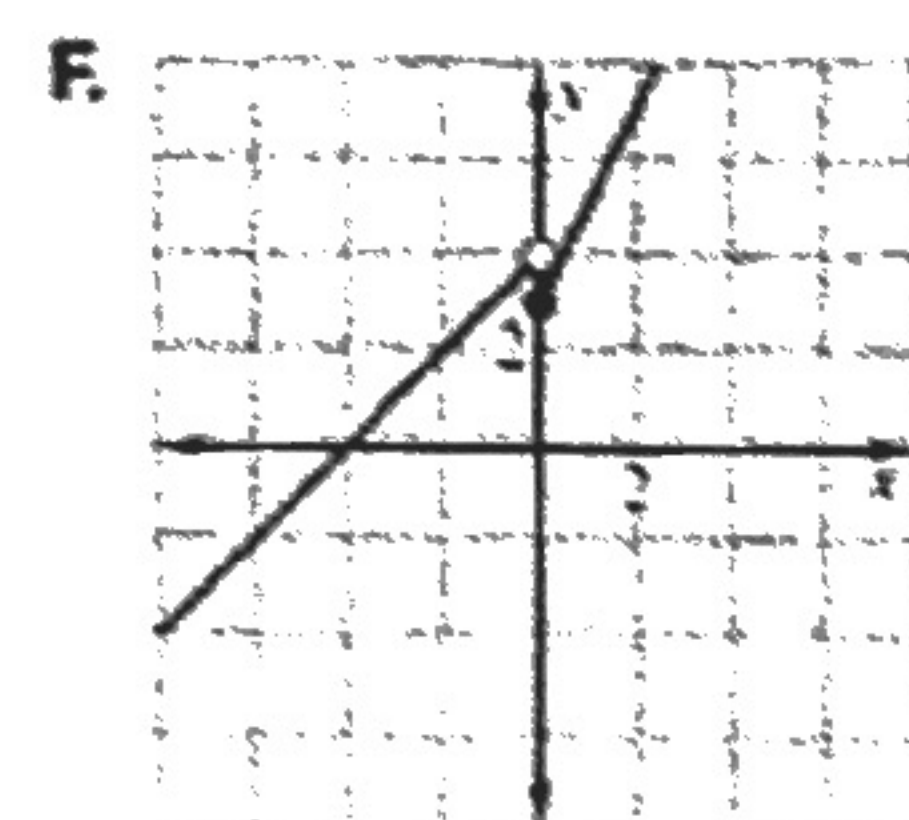
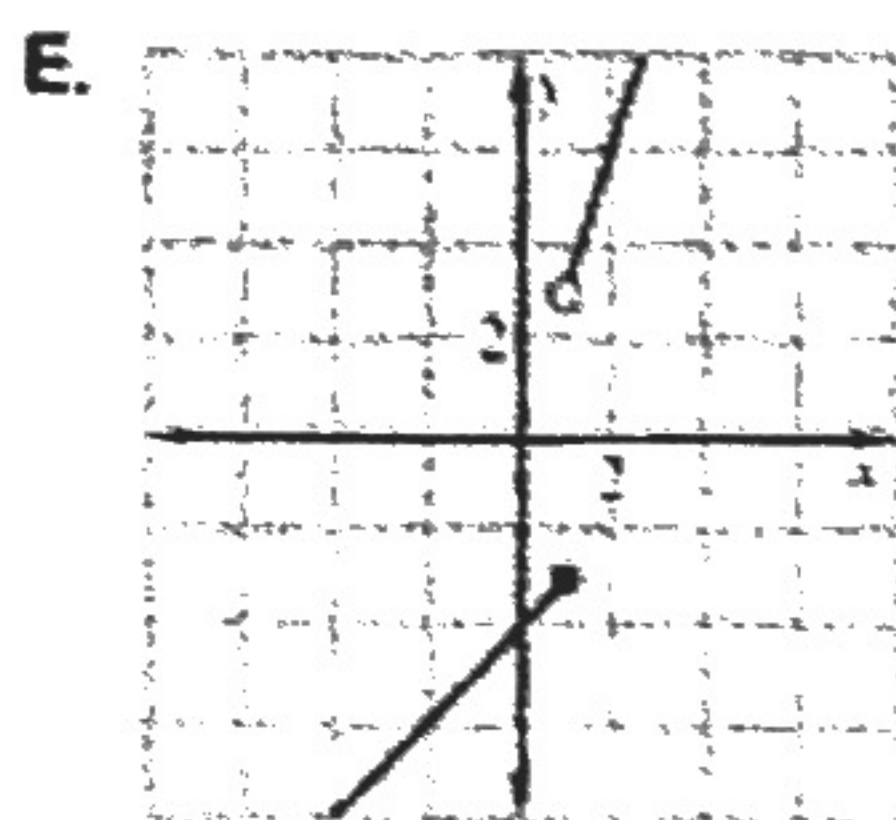
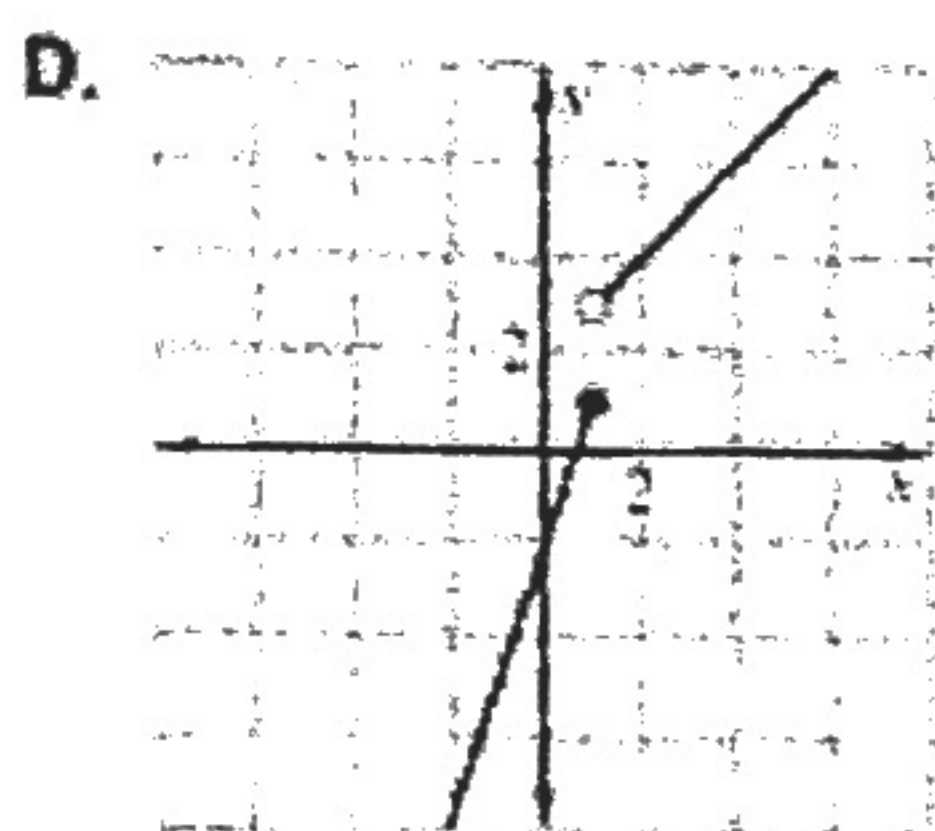
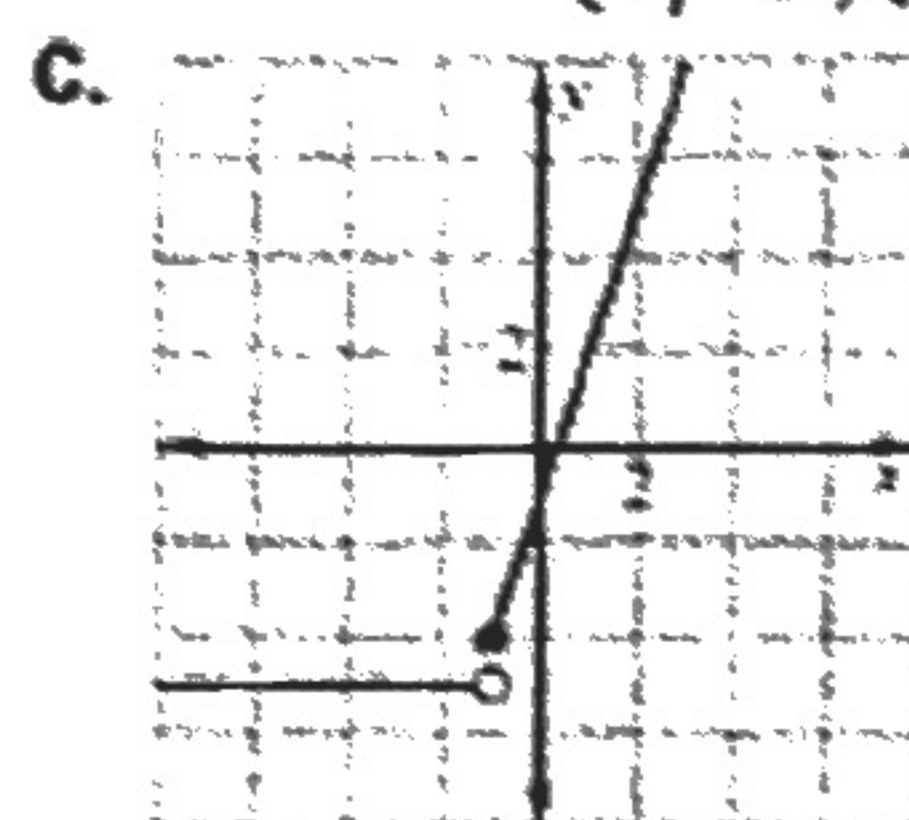
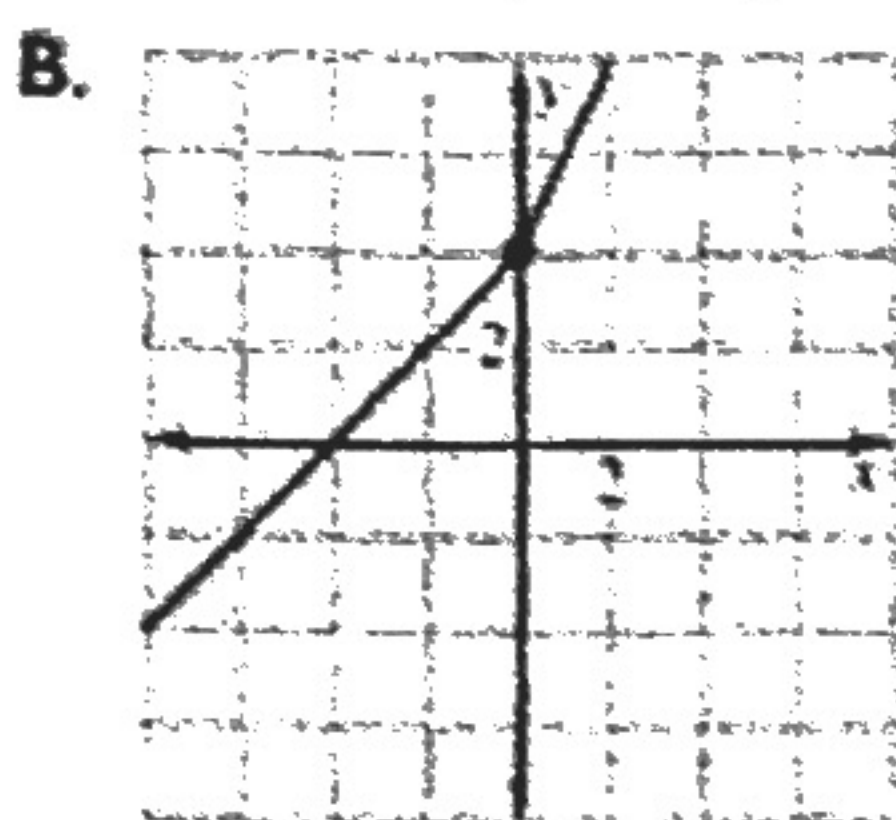
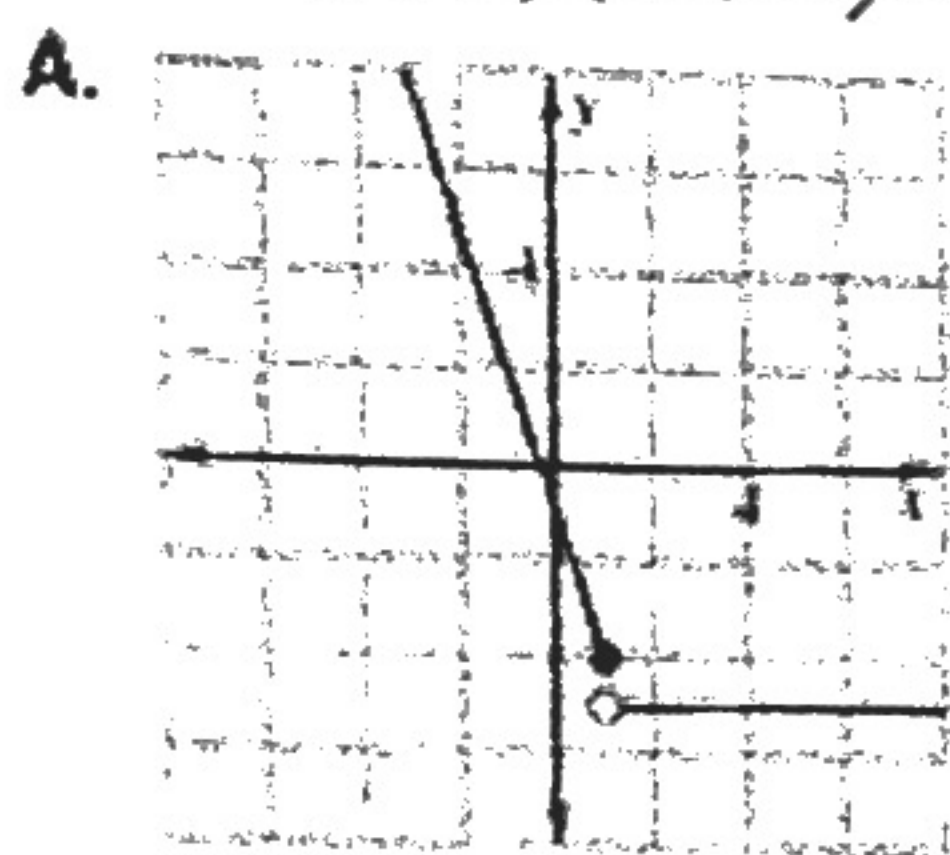
$$g(x) = \begin{cases} x + 5, & \text{if } x \leq 3 \\ 2x - 1, & \text{if } x > 3 \end{cases}$$

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

a. $f(2) = 2$	b. $g(7) = 13$	c. $h(-4) = -6$
d. $h(-2) = -5$	e. $f(\frac{1}{2}) = 3$	f. $g(3) = 8$

2. Match the piecewise function with its graph.

a. E $f(x) = \begin{cases} x - 4, & \text{if } x \leq 1 \\ 3x, & \text{if } x > 1 \end{cases}$ Points: $(1, -3), (0, -4), (1, 3), (2, 6)$	b. B $f(x) = \begin{cases} x + 4, & \text{if } x \leq 0 \\ 2x + 4, & \text{if } x > 0 \end{cases}$ Points: $(0, 4), (-1, 3), (0, 4), (1, 6)$	c. D $f(x) = \begin{cases} 3x - 2, & \text{if } x \leq 1 \\ x + 2, & \text{if } x > 1 \end{cases}$ Points: $(1, 1), (0, -2), (1, 3), (2, 4)$
d. F $f(x) = \begin{cases} 2x + 3, & \text{if } x \geq 0 \\ x + 4, & \text{if } x < 0 \end{cases}$ Points: $(0, 3), (1, 5), (0, 4), (-1, 3)$	e. C $f(x) = \begin{cases} 3x - 1, & \text{if } x \geq -1 \\ -5, & \text{if } x < -1 \end{cases}$ Points: $(-1, -4), (0, -1), (-1, -5), (-2, -5)$	f. A $f(x) = \begin{cases} -3x - 1, & \text{if } x \leq 1 \\ -5, & \text{if } x > 1 \end{cases}$ Points: $(1, -4), (0, -1), (1, -5), (2, -5)$

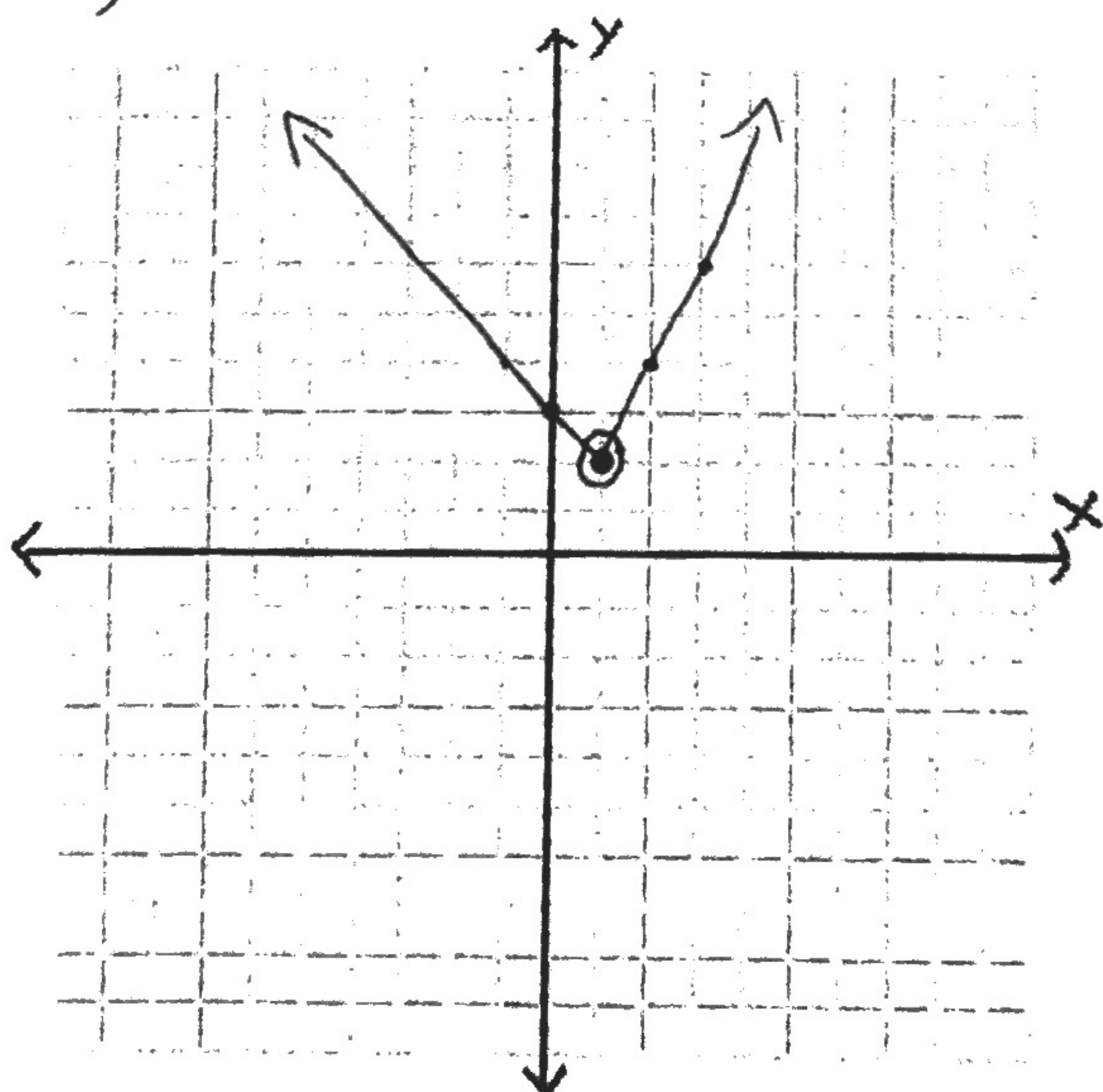


3. Graph each function on graph paper.

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

a. $(1, 2), (2, 4), (3, 6)$
 $(1, 2), (0, 3), (-1, 4)$

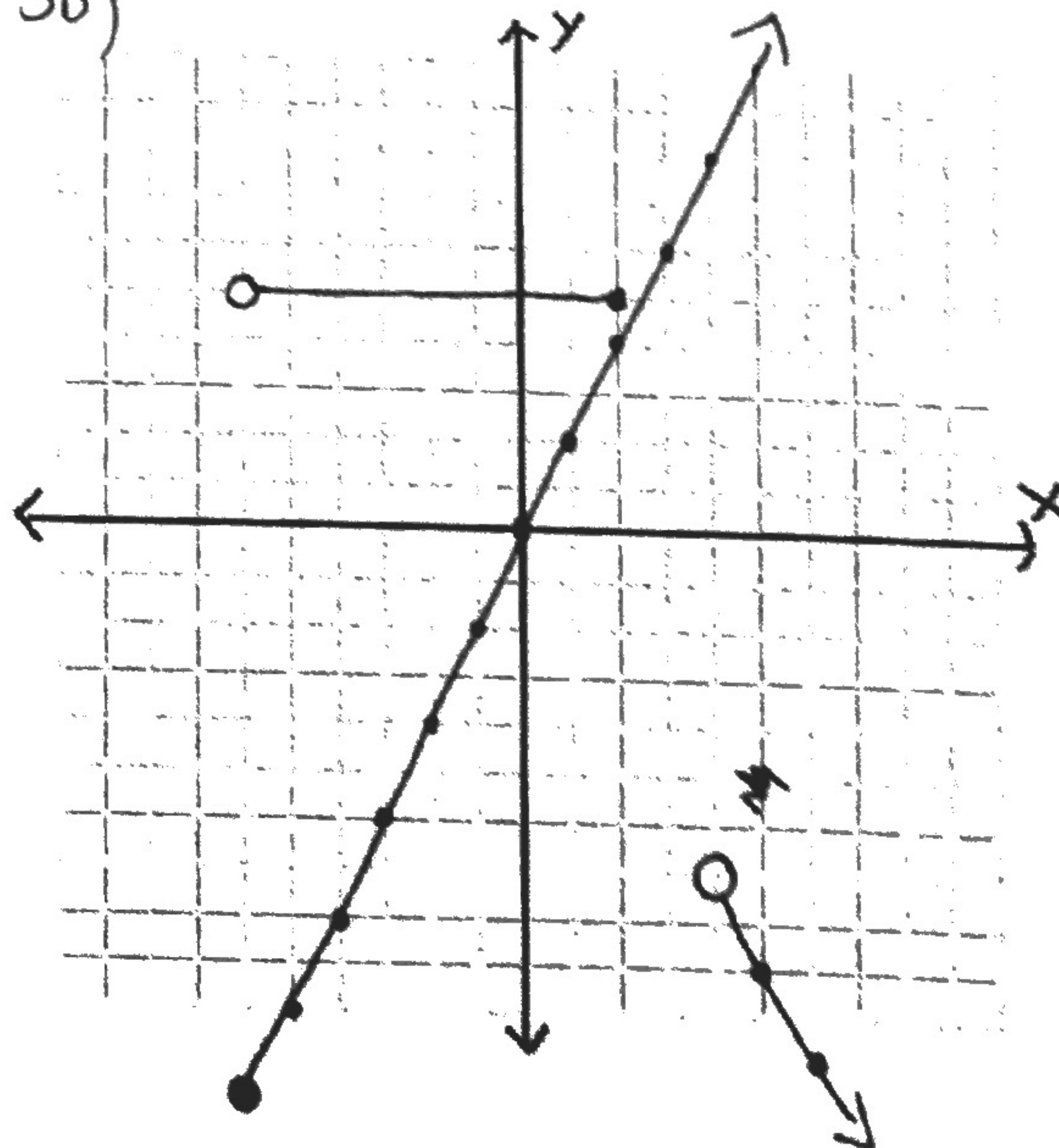
3a)



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

b. $(-6, -12), (-5, -10), (-4, -8)$
 $(4, -7), (5, -9), (6, -11)$

3b)



Name _____

Period _____

Worksheet - Piecewise Functions

Evaluate the following for $f(x) = \begin{cases} 3x-5, & x > 4 \\ x^2, & x \leq 4 \end{cases}$:

1. $f(7) = 16$
 $3(7) - 5$

2. $f(4) = 16$
 $(4)^2$

3. $f(-3) = 9$
 $(-3)^2$

Evaluate the following for $f(x) = \begin{cases} -2x+1, & x \leq 1 \\ 3, & 1 < x < 3 \\ 6-2x, & x \geq 3 \end{cases}$:

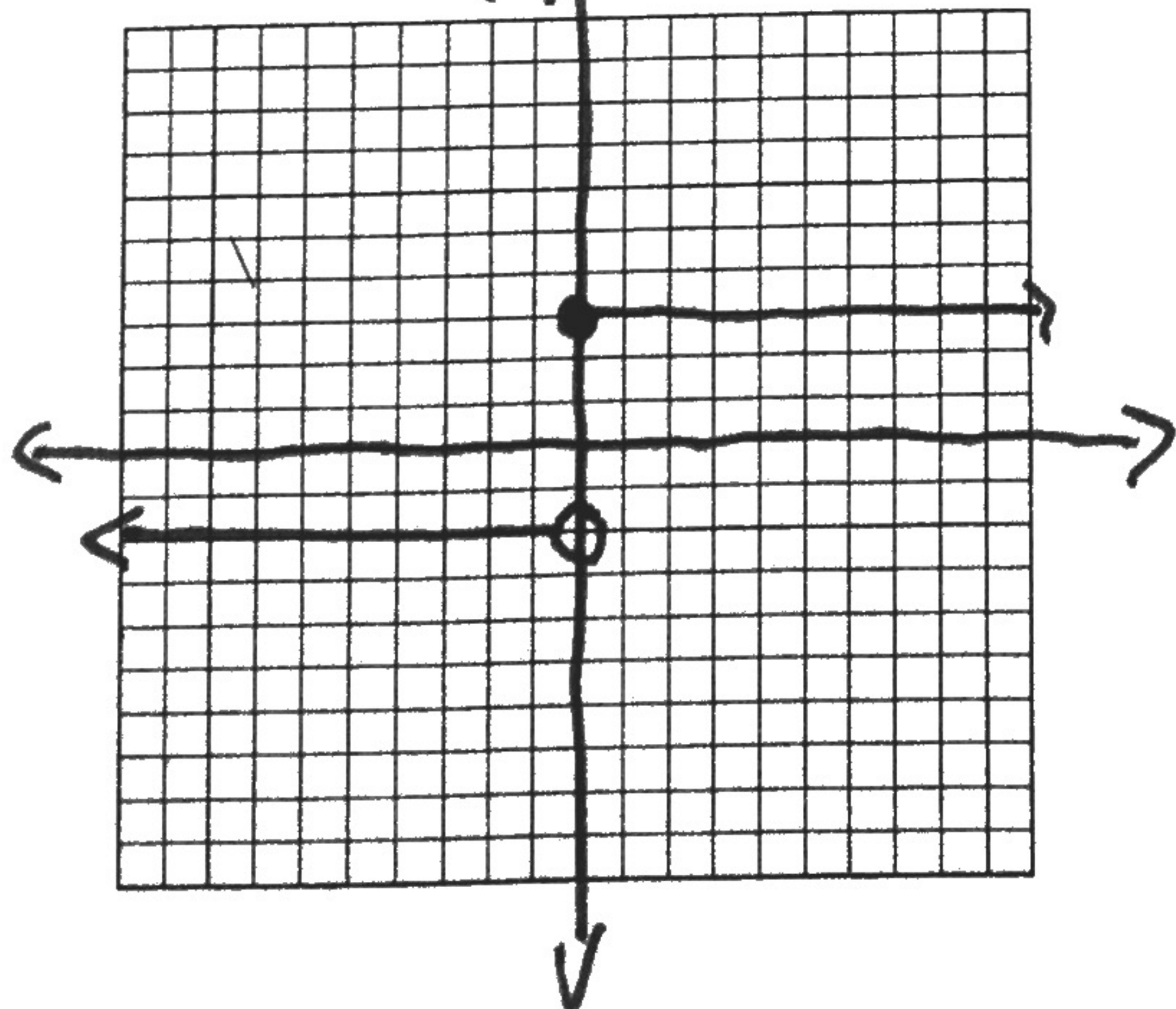
4. $f(10)$
 $6 - 2(10) = -14$

5. $f(2) = 3$

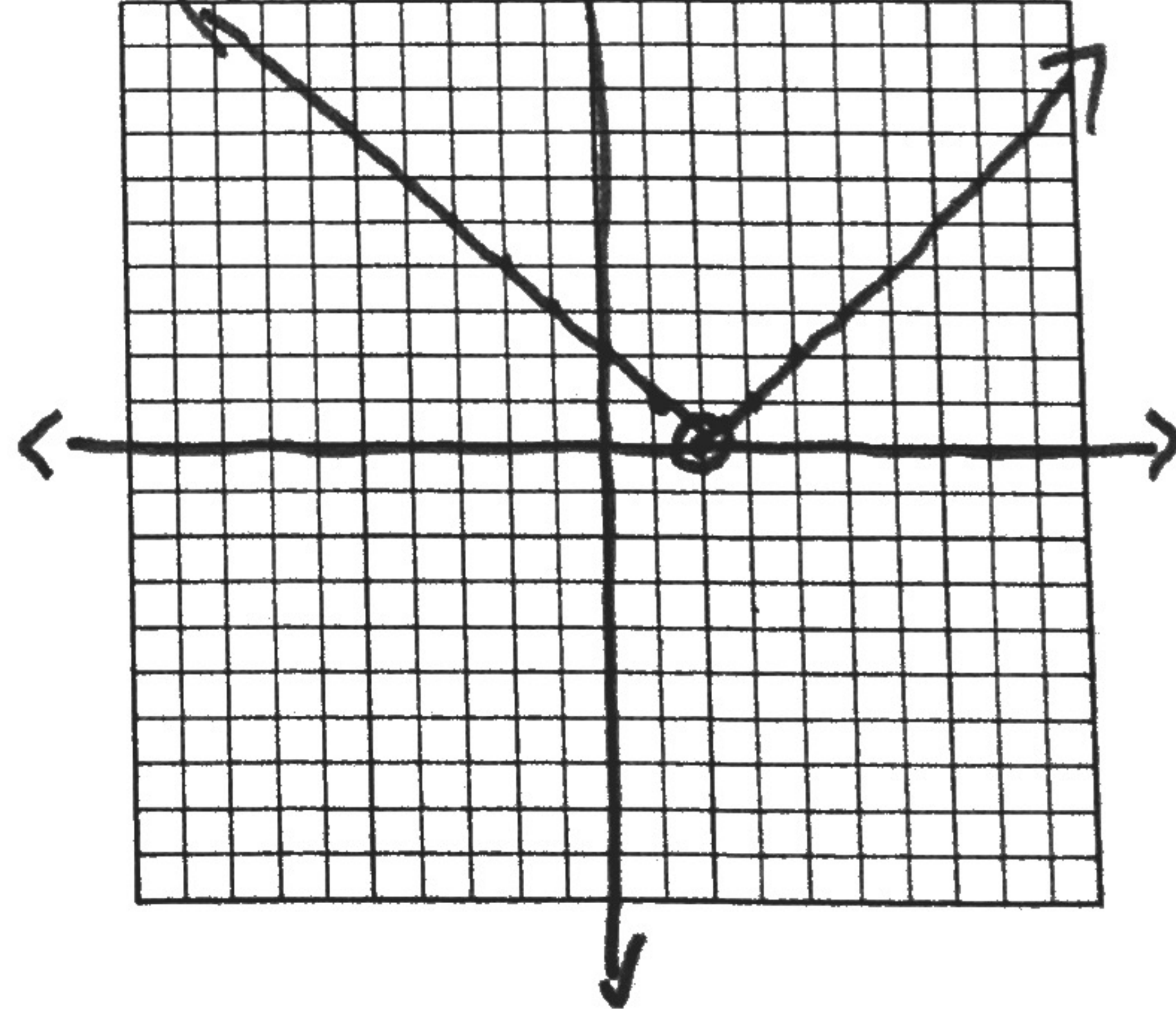
6. $f(0)$
 $-2(0) + 1 = 1$

Graph the following piecewise functions.

7. $f(x) = \begin{cases} -2, & x < 0 \\ 3, & x \geq 0 \end{cases}$

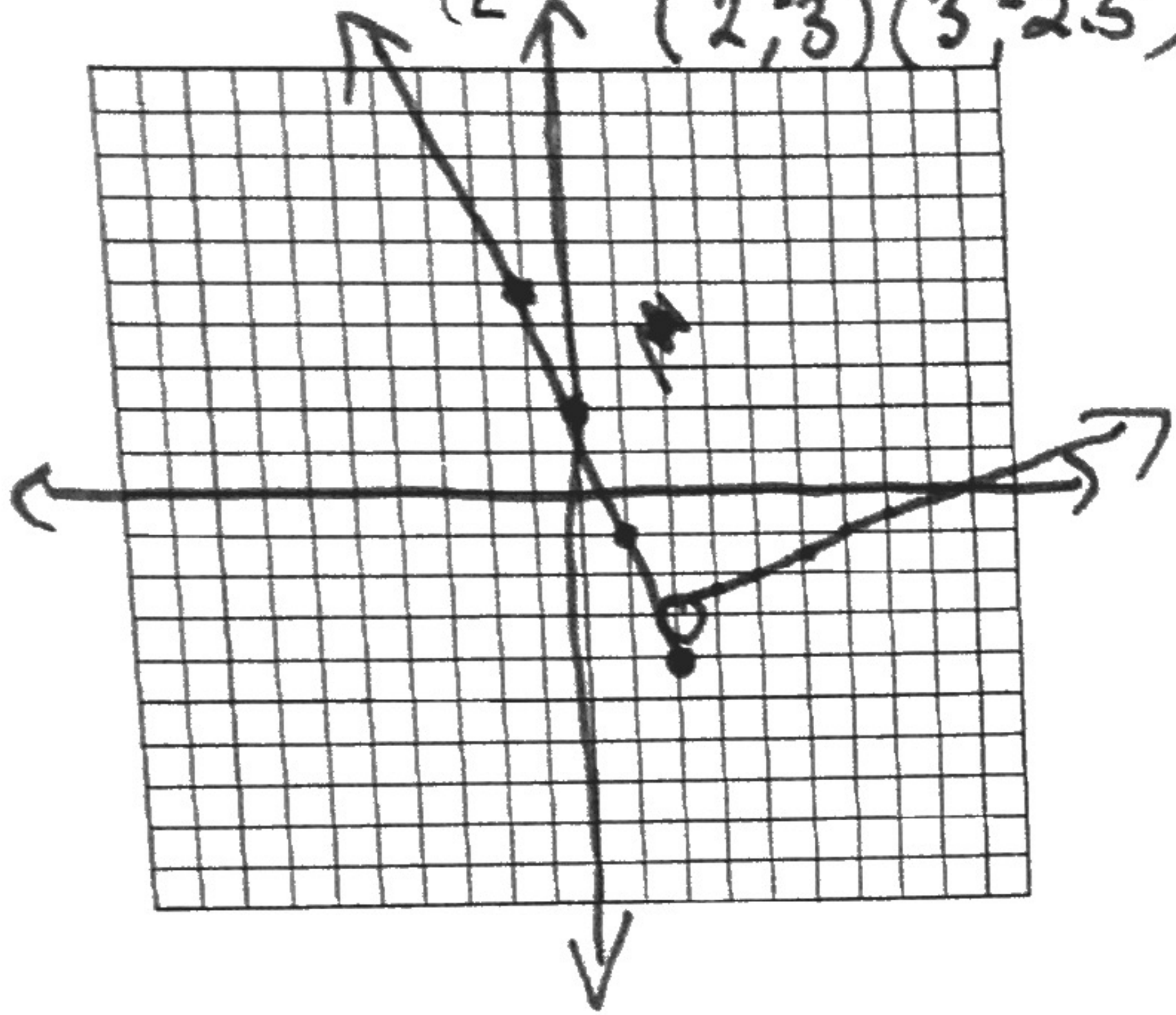


8. $g(x) = \begin{cases} -x+2, & x < 2 \\ x-2, & x \geq 2 \end{cases}$ $(2,0)$ $(1,1)$ $(0,2)$ $(2,0)$ $(3,1)$ $(4,2)$

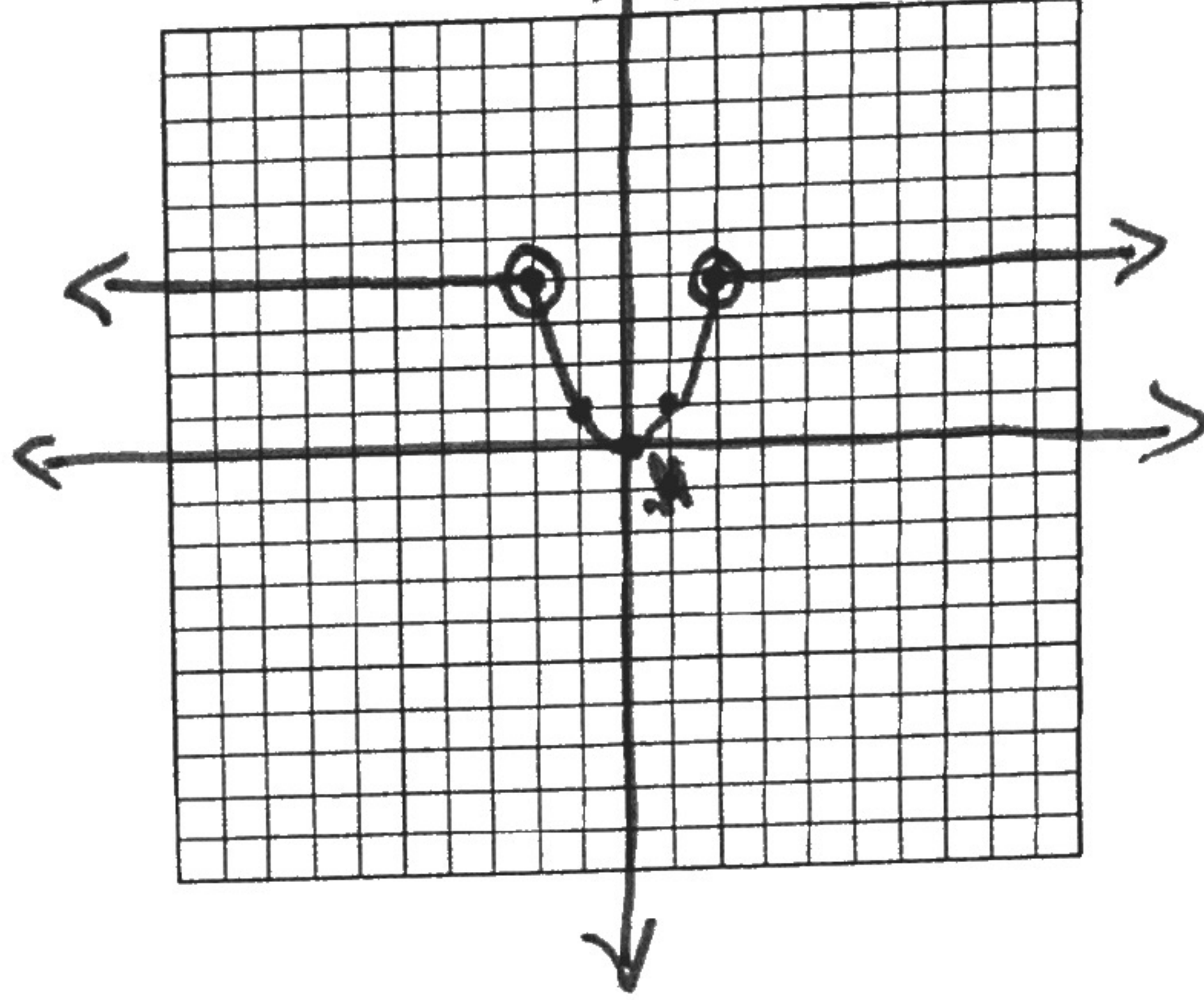


$(2, -4)(1, -1)$

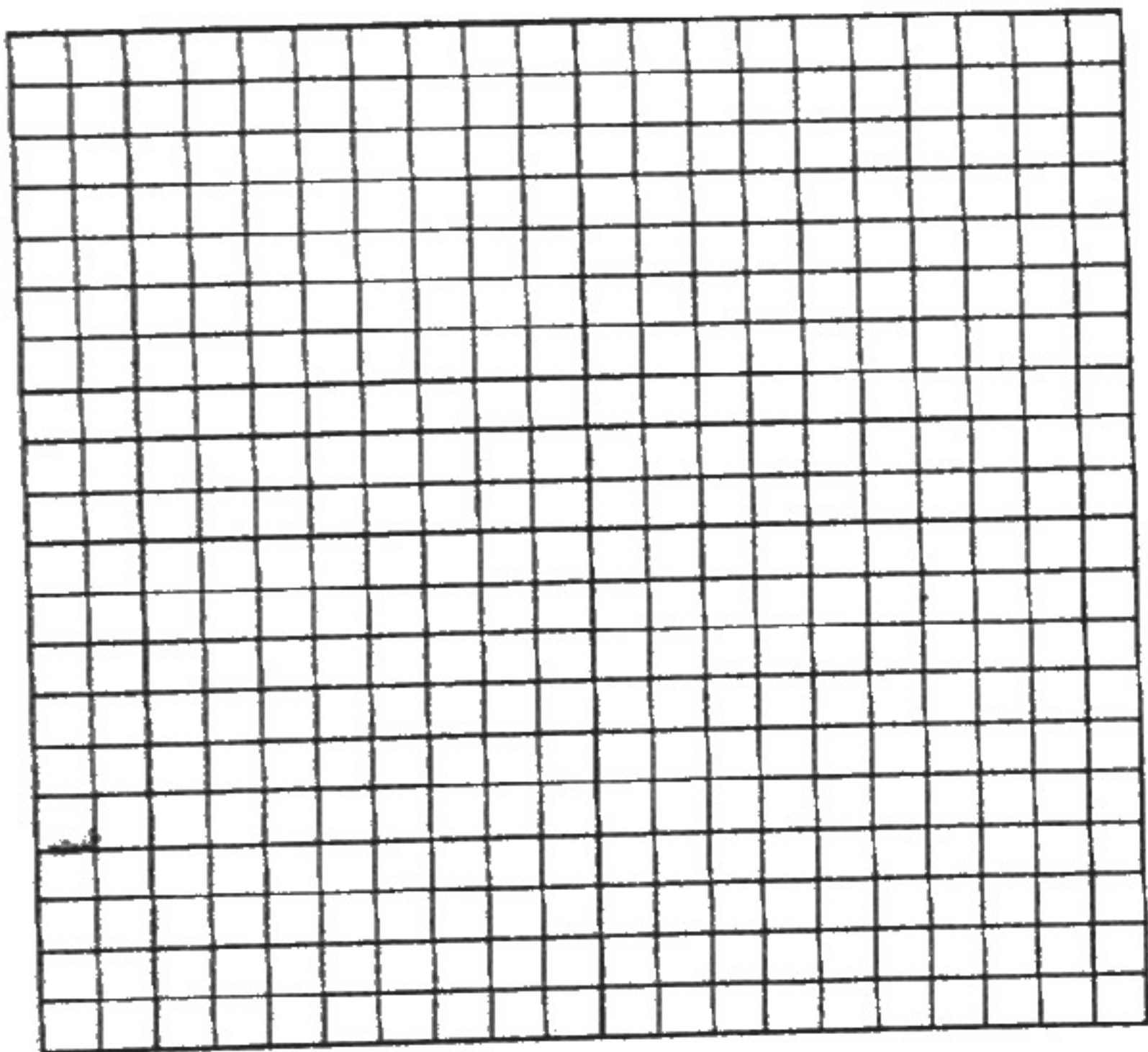
$$9. h(x) = \begin{cases} -3x+2, & x \leq 2 \\ \frac{1}{2}x-4, & x > 2 \end{cases}$$



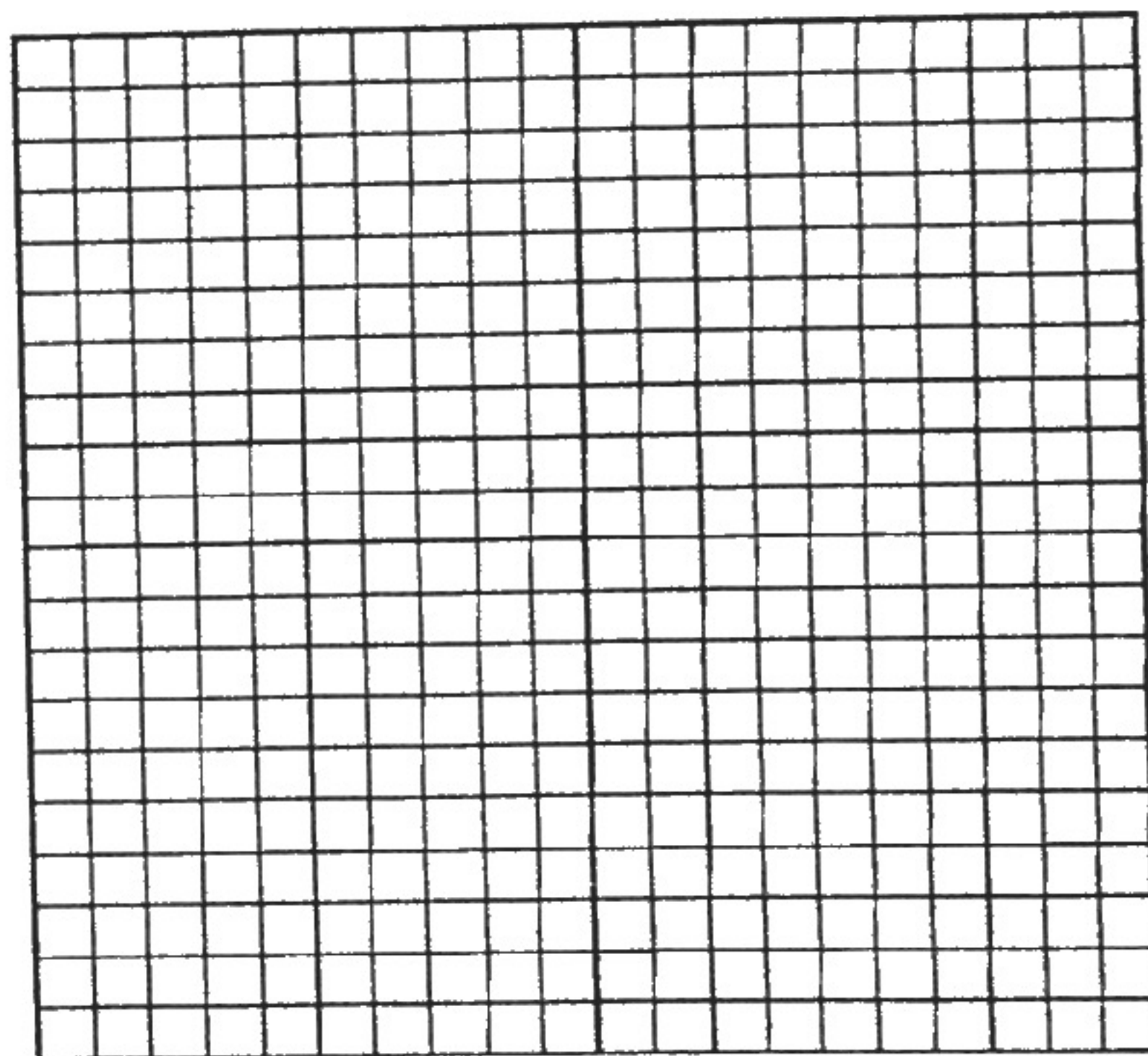
$$10. f(x) = \begin{cases} 4, & x \leq -2 \\ x^2, & -2 < x < 2 \\ 4, & x \geq 2 \end{cases} \quad (-2, 4)(-1, 1)$$



$$11. g(x) = \begin{cases} 3x+12, & x \leq -3 \\ |x|, & -3 < x < 3 \\ -3x+12, & x \geq 3 \end{cases}$$



$$12. h(x) = \begin{cases} x^2 - 4, & x < 3 \\ \frac{2}{3}x - 5, & x \geq 3 \end{cases}$$



13. Which of the piecewise functions are continuous?

8, 10

14. Which of the piecewise functions are discontinuous?

7, 9