

Practice Test Chapter 2A

1. Find the slope of the line between $(4, -9)$ and $(-7, -5)$.

$$m = \frac{-5 - (-9)}{-7 - 4} = \boxed{\frac{4}{-11}}$$

2. Are the following lines parallel, perpendicular or neither?

3. Given the following line $f(x) = \frac{3}{5}x + 2$ find the equation of the line through $(45, -2)$ that is:

a. Parallel $y = \frac{3}{5}x + b$
 $-2 = \frac{3}{5}(45) + b$
 $-2 = 27 + b$

b. Perpendicular $-29 = b$
 $y = \frac{3}{5}x - 29$

b) perpend.

$$y = -\frac{5}{3}x + b$$

$$-2 = -\frac{5}{3}(45) + b$$

$$-2 = -75 + b$$

$$73 = b$$

$$y = -\frac{5}{3}x + 73$$

4. Use $f(x) = \begin{cases} 2x-5 & x < -4 \\ 3x^2 - 4x + 9 & -4 \leq x \leq 2 \\ 5 & x > 2 \end{cases}$ for the following questions

a. $f(0)$

$$3(0)^2 - 4(0) + 9 = \boxed{9}$$

b. $f(-6)$

$$2(-6) - 5 = -12 - 5 = \boxed{-17}$$

c. $f(7)$

$$\boxed{5}$$

5. Given $f(x) = 4x^2 - 5x + 3$ find $f(x-2)$

$$4(x-2)^2 - 5(x-2) + 3$$

$$4(x-2)(x-2) - 5x + 10 + 3$$

$$4(x^2 - 4x + 4) - 5x + 13$$

$$4x^2 - 16x + 16 - 5x + 13 = \boxed{4x^2 - 21x + 29}$$

6. Find the zeros of $g(x) = \frac{x^2 - 9x + 18}{x - 7}$

$$x^2 - 9x + 18 = 0$$

$$(x-6)(x-3) = 0$$

$$\boxed{x = 6, 3}$$

7. Is the following function odd, even or neither: $y = -2x^3 - 7x$

$$y = -2(-x)^3 - 7(-x)$$

$$y = 2x^3 + 7x$$

~~even~~

odd

8. Given $y = -2\sqrt{x+4} - 5$ state the parent function and list the transformations

PF: \sqrt{x}

over x-axis

VD 2

L4, D5

9. Find the domain for the following functions and write the answer in interval notation.

a. $y = \frac{x-2}{x+6}$

$x \neq -6$

$(-\infty, -6) \cup (-6, \infty)$

b. $\sqrt{2x-7}$

$2x-7 \geq 0$

$2x \geq 7$

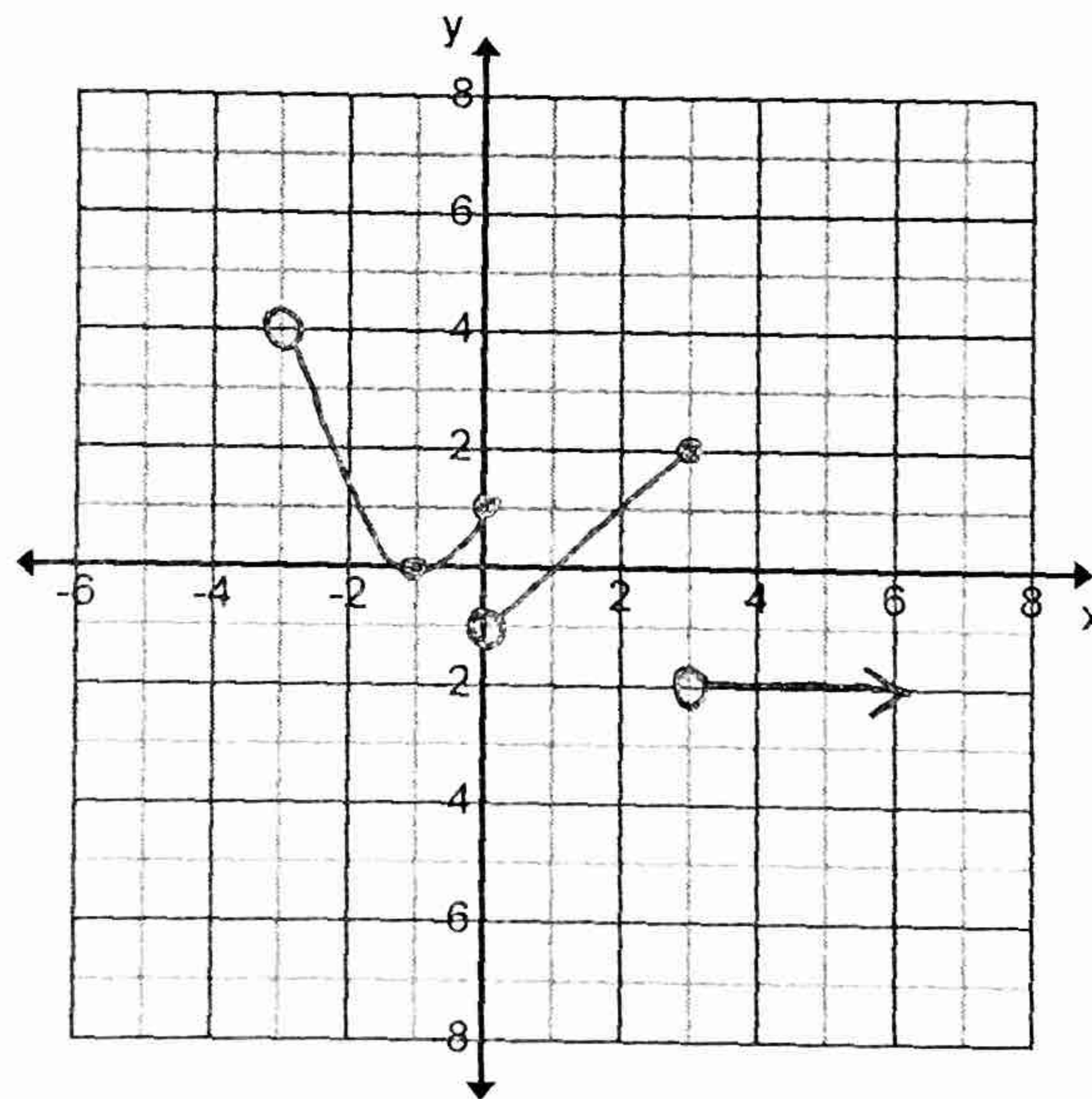
$x \geq 7/2$

$[7/2, \infty)$

10. Sketch the graph of $f(x)$.

$$f(x) = \begin{cases} (x+1)^2 & -3 < x \leq 0 \\ x-1 & 0 < x \leq 3 \\ -2 & 3 < x \end{cases}$$

$(-3+1)^2 = 4$



11. Find the average rate of change of the function from x_1 to x_2 for

$f(x) = x^2 + 6x + 7$

$x_1 = -2$

$x_2 = 3$

$$\frac{f(3) - f(-2)}{3 - (-2)}$$

$$\frac{34 - (-1)}{5} = \frac{35}{5} = \boxed{7}$$

12. Find the equation of the graph to the right

$$y = a(x-1)^2 + 4$$

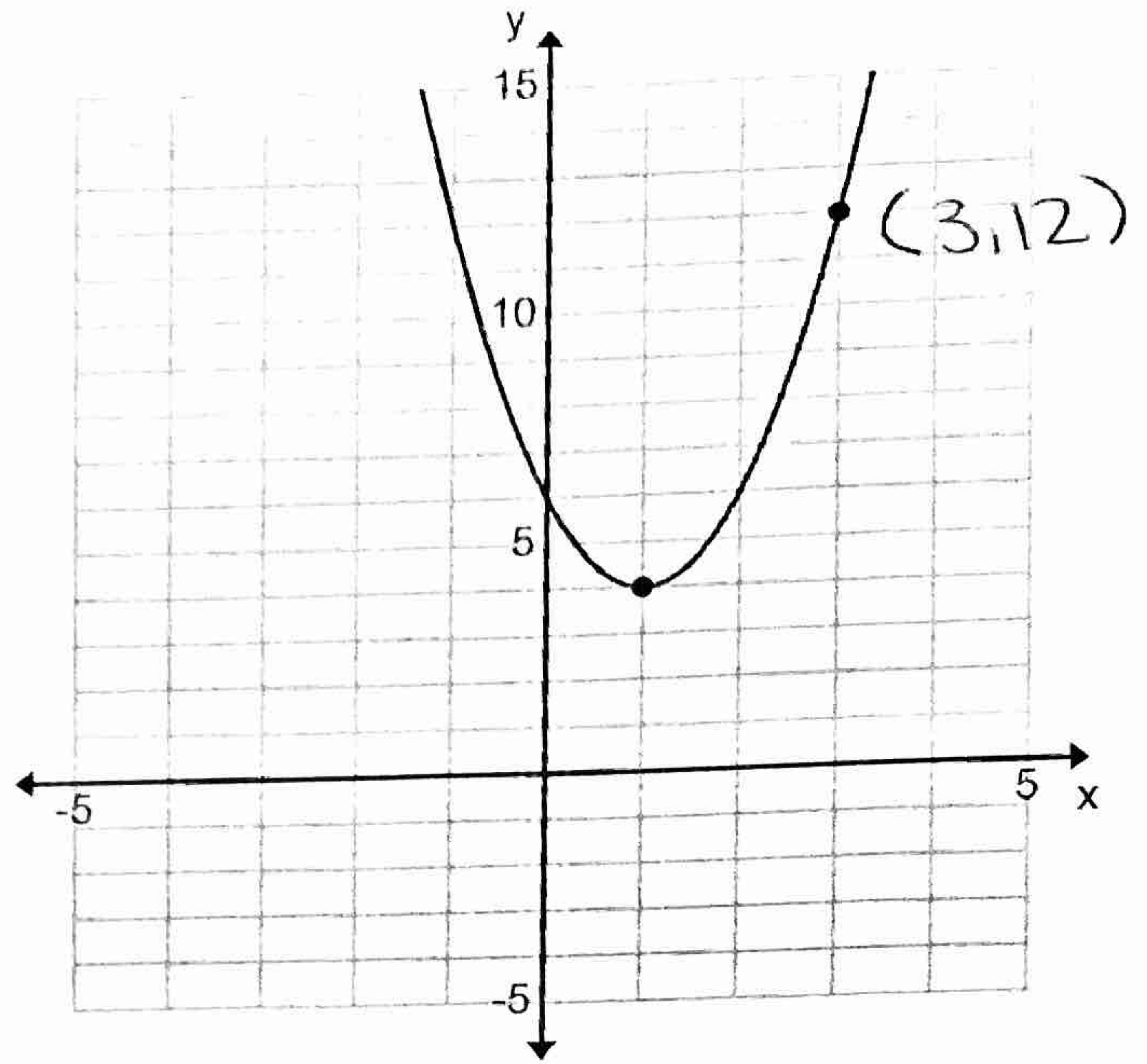
$$12 = a(3-1)^2 + 4$$

$$12 = 4a + 4$$

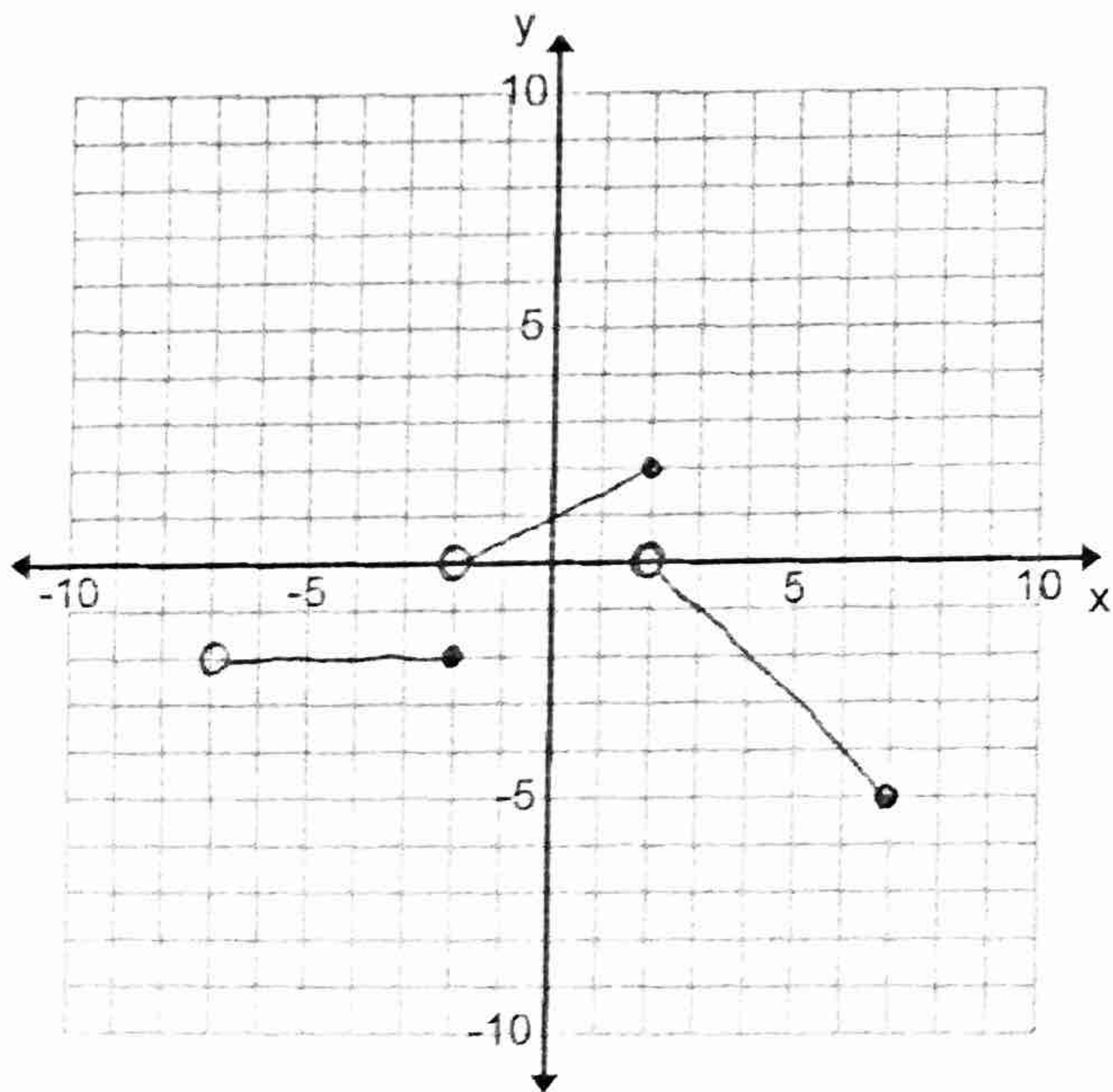
$$8 = 4a$$

$$2 = a$$

$$y = 2(x-1)^2 + 4$$



13. Use the graph to find the following pieces.



Domain $(-7, 7]$

Range: $[-5, 2]$

Increasing: $(-2, 2)$

Decreasing: $(2, 7)$

Constant: $(-7, -2)$