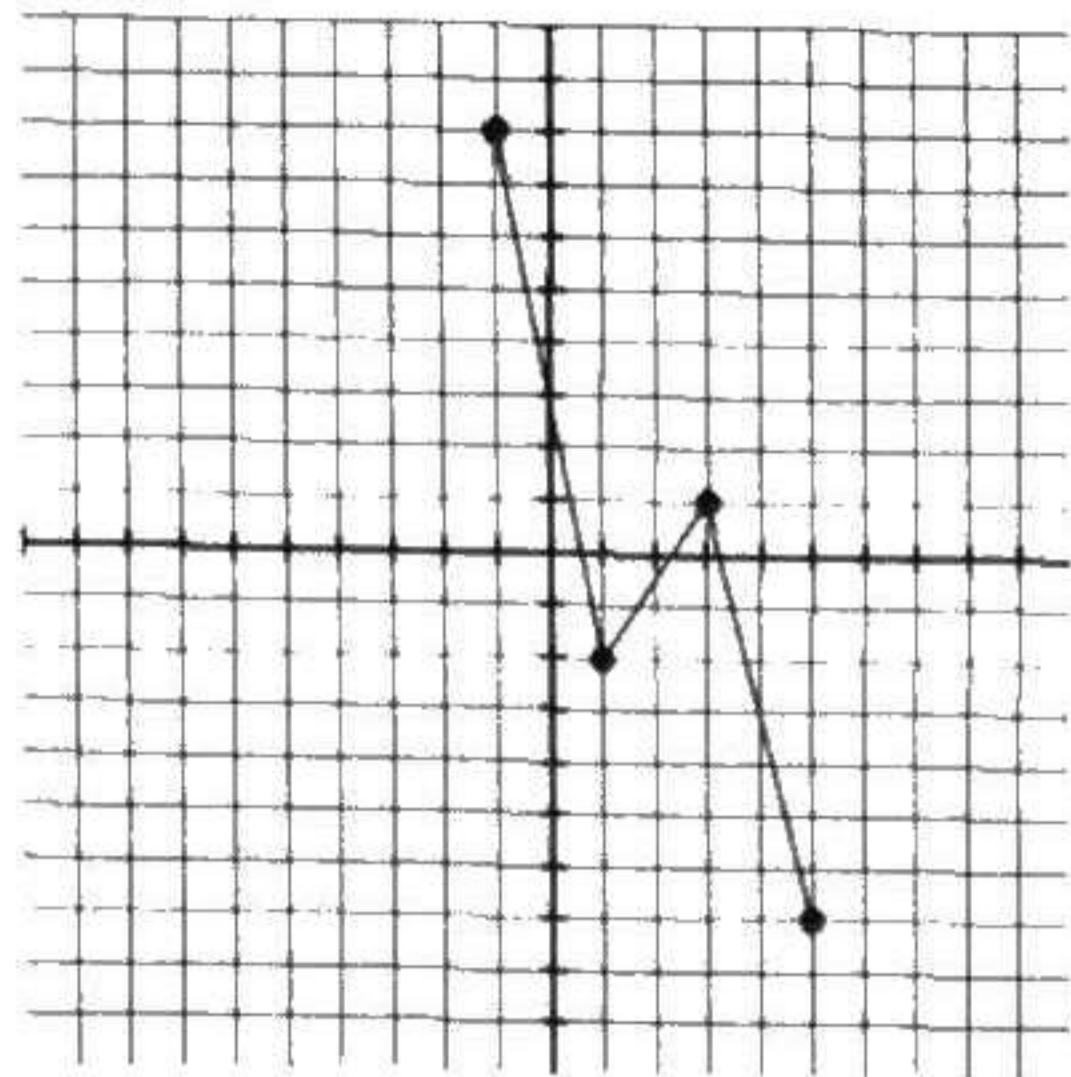


Review 1-1

MU-7ann

1NC.



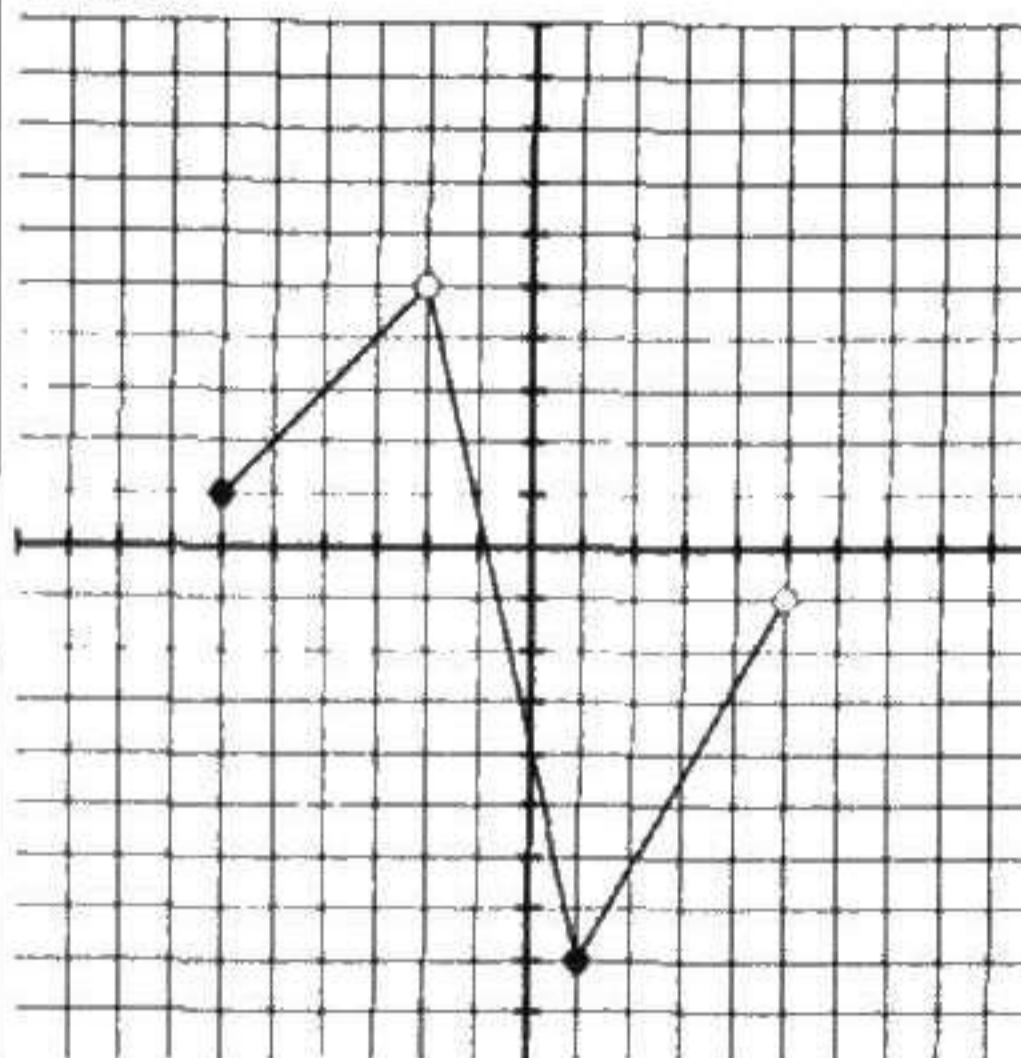
Domain:

$$[-1, 5]$$

Range:

$$[-7, 8]$$

2NC.



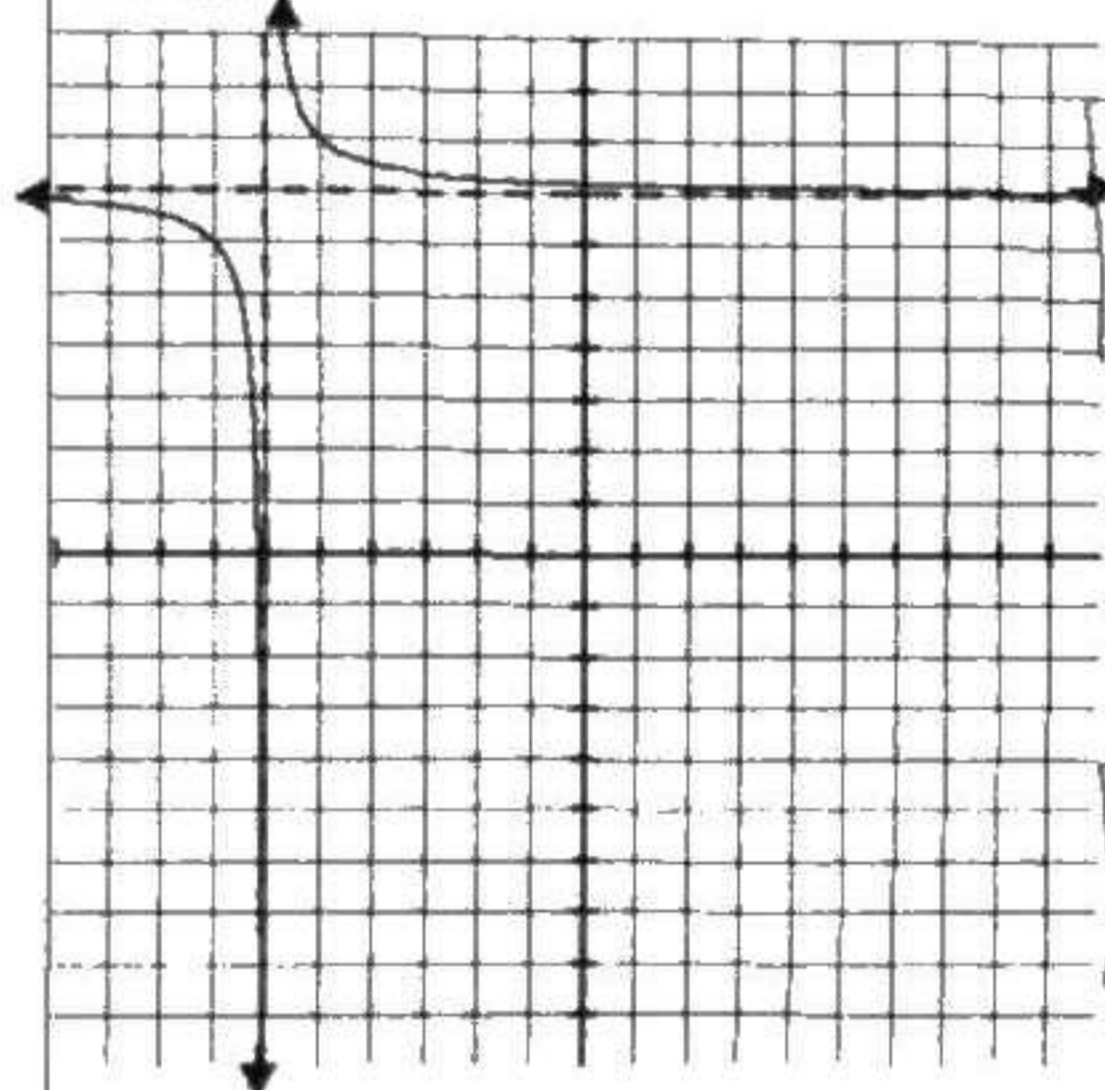
Domain:

$$[-6, -2) \cup (-2, 5)$$

Range:

$$[-8, 5)$$

3NC.



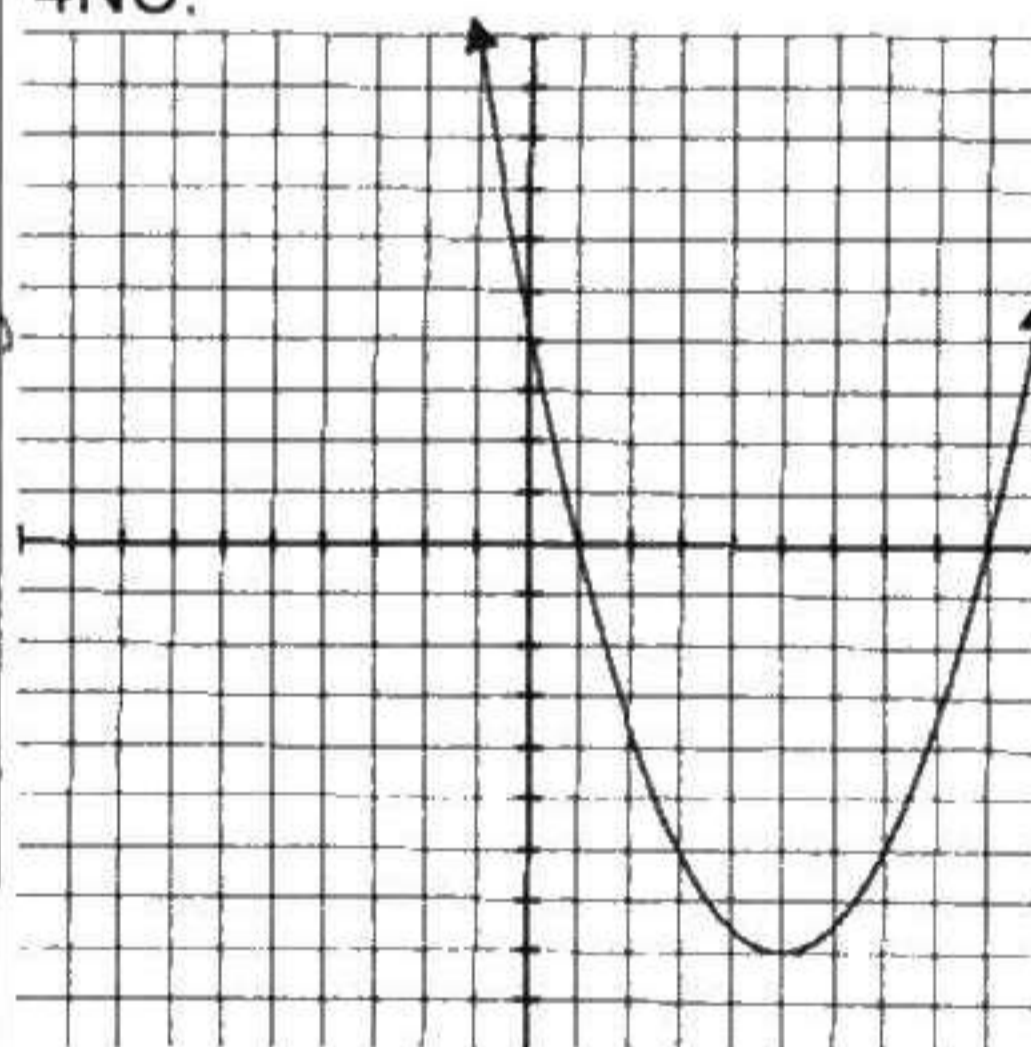
Domain:

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

Range:

$$(-\infty, 7) \cup (7, \infty)$$

4NC.



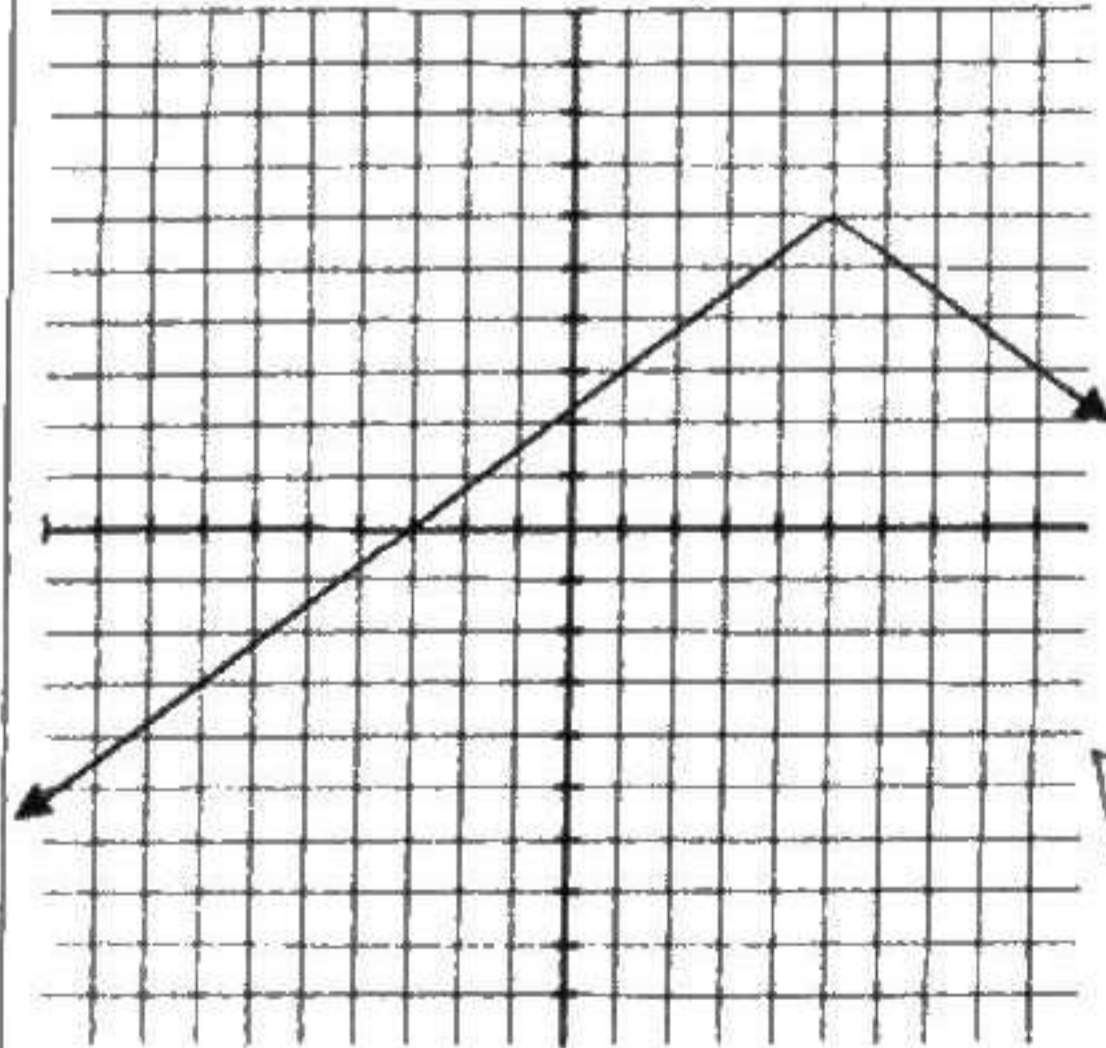
Domain:

$$(-\infty, \infty)$$

Range:

$$[-8, \infty)$$

5NC.



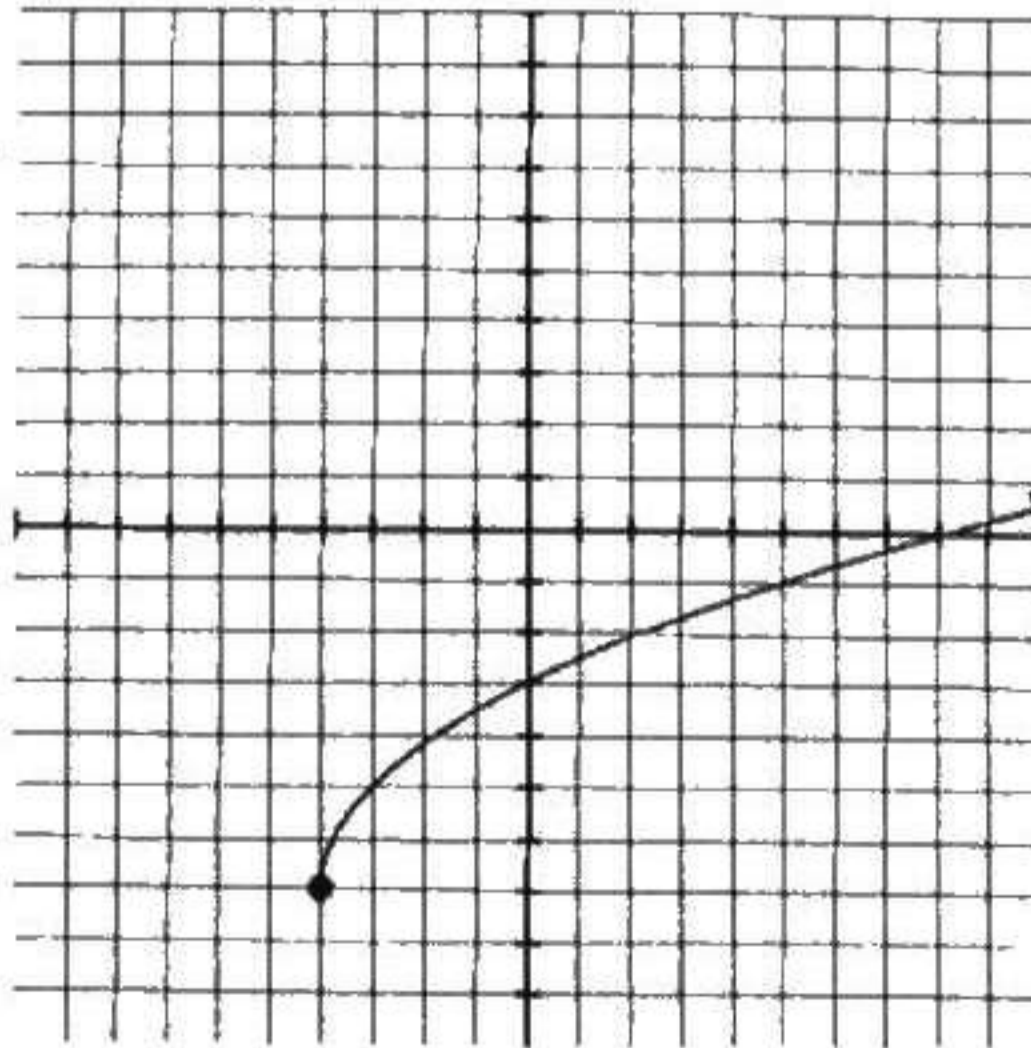
Domain:

$$(-\infty, \infty)$$

Range:

$$(-\infty, 6]$$

6NC.



Domain:

$$[-4, \infty)$$

Range:

$$[-7, \infty)$$

The following graph defines the function $f(x)$. Use this information to graph problems 7 and 8:

<p>$f(x)$</p>	<p>7NC. $g(x) = 4f[\frac{1}{2}(x-5)] - 3$</p>	<p>8NC. $h(x) = -3f[2(x+6)] + 5$</p>																																
<table border="1" style="margin: auto;"> <tr><th>x</th><th>y</th></tr> <tr><td>$-4(\frac{1}{2})+5$</td><td>$2(4)-3$</td></tr> <tr><td>$-2(\frac{1}{2})+5$</td><td>$-1(4)-3$</td></tr> <tr><td>$2(\frac{1}{2})+5$</td><td>$1(4)-3$</td></tr> </table>	x	y	$-4(\frac{1}{2})+5$	$2(4)-3$	$-2(\frac{1}{2})+5$	$-1(4)-3$	$2(\frac{1}{2})+5$	$1(4)-3$	<table border="1" style="margin: auto;"> <tr><th>x</th><th>y</th></tr> <tr><td>-3</td><td>2</td></tr> <tr><td>1</td><td>-1</td></tr> <tr><td>9</td><td>1</td></tr> </table>	x	y	-3	2	1	-1	9	1	<table border="1" style="margin: auto;"> <tr><th>x</th><th>y</th></tr> <tr><td>$-4(\frac{1}{2})-6$</td><td>$2(-3)+5$</td></tr> <tr><td>$-2(\frac{1}{2})-6$</td><td>$-1(-3)+5$</td></tr> <tr><td>$2(\frac{1}{2})-6$</td><td>$1(-3)+5$</td></tr> </table> <table border="1" style="margin: auto;"> <tr><th>x</th><th>y</th></tr> <tr><td>-8</td><td>-1</td></tr> <tr><td>-7</td><td>8</td></tr> <tr><td>-5</td><td>2</td></tr> </table>	x	y	$-4(\frac{1}{2})-6$	$2(-3)+5$	$-2(\frac{1}{2})-6$	$-1(-3)+5$	$2(\frac{1}{2})-6$	$1(-3)+5$	x	y	-8	-1	-7	8	-5	2
x	y																																	
$-4(\frac{1}{2})+5$	$2(4)-3$																																	
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x	y																																	
-3	2																																	
1	-1																																	
9	1																																	
x	y																																	
$-4(\frac{1}{2})-6$	$2(-3)+5$																																	
$-2(\frac{1}{2})-6$	$-1(-3)+5$																																	
$2(\frac{1}{2})-6$	$1(-3)+5$																																	
x	y																																	
-8	-1																																	
-7	8																																	
-5	2																																	

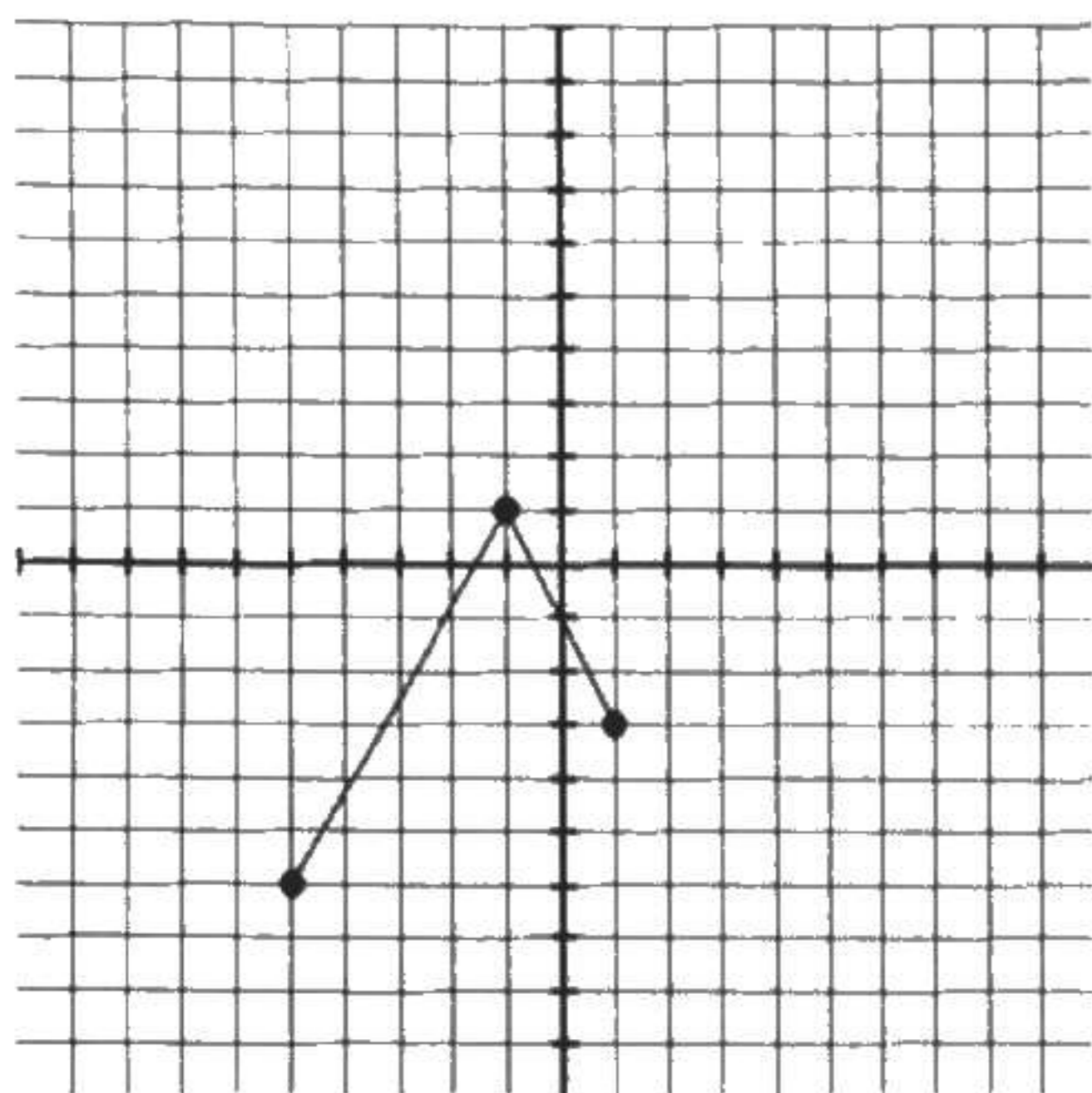
Use your knowledge of parent functions and parameter shifts in order to graph the following equations:

<p>9NC. $y = 3 \frac{1}{2}(x-6) + 4$</p> <table border="1" style="margin: auto;"> <tr><th>x</th><th>y</th></tr> <tr><td>$2(\frac{1}{2})+6$</td><td>2</td></tr> <tr><td>$-1(\frac{1}{2})+6$</td><td>4</td></tr> <tr><td>$0(\frac{1}{2})+6$</td><td>6</td></tr> <tr><td>$1(\frac{1}{2})+6$</td><td>8</td></tr> <tr><td>$2(\frac{1}{2})+6$</td><td>10</td></tr> </table>	x	y	$2(\frac{1}{2})+6$	2	$-1(\frac{1}{2})+6$	4	$0(\frac{1}{2})+6$	6	$1(\frac{1}{2})+6$	8	$2(\frac{1}{2})+6$	10	<p>10NC. $y = -2[\frac{1}{3}(x+1)]^2 + 5$</p> <table border="1" style="margin: auto;"> <tr><th>x</th><th>y</th></tr> <tr><td>$2(\frac{1}{3})-1$</td><td>-1</td></tr> <tr><td>$-1(\frac{1}{3})-1$</td><td>-4</td></tr> <tr><td>$0(\frac{1}{3})-1$</td><td>-1</td></tr> <tr><td>$1(\frac{1}{3})-1$</td><td>2</td></tr> <tr><td>$2(\frac{1}{3})-1$</td><td>5</td></tr> </table>	x	y	$2(\frac{1}{3})-1$	-1	$-1(\frac{1}{3})-1$	-4	$0(\frac{1}{3})-1$	-1	$1(\frac{1}{3})-1$	2	$2(\frac{1}{3})-1$	5
x	y																								
$2(\frac{1}{2})+6$	2																								
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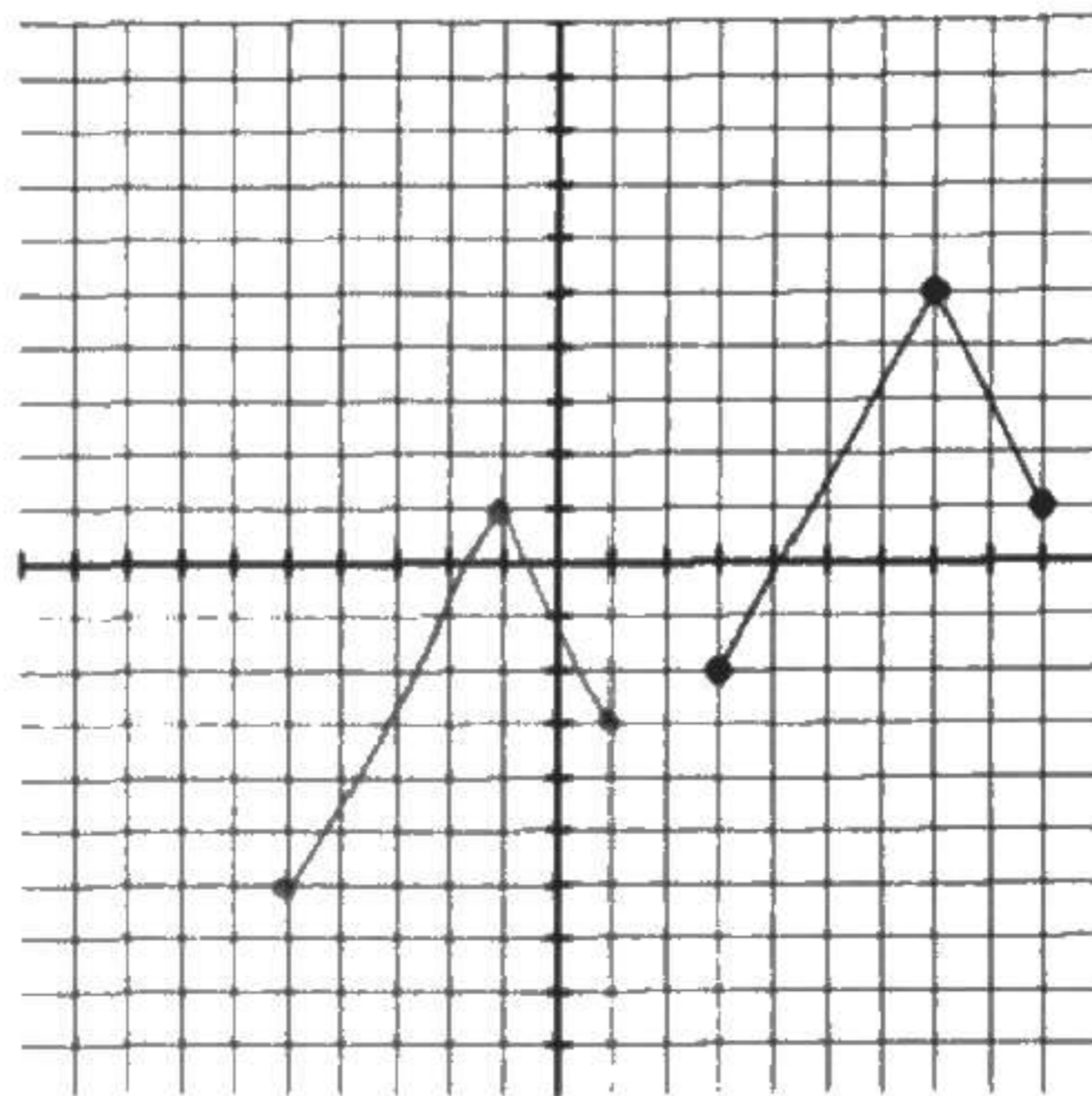
<p>11NC. $y = 4\sqrt{x+3} - 8$</p> <table border="1" style="margin: auto;"> <tr><th>x</th><th>y</th></tr> <tr><td>$0-3$</td><td>-3</td></tr> <tr><td>$1-3$</td><td>-2</td></tr> <tr><td>$4-3$</td><td>1</td></tr> <tr><td>$9-3$</td><td>6</td></tr> </table>	x	y	$0-3$	-3	$1-3$	-2	$4-3$	1	$9-3$	6	<p>12NC. $y = \frac{-3}{x-2} + 4$</p> <table border="1" style="margin: auto;"> <tr><th>x</th><th>y</th></tr> <tr><td>0</td><td>-3</td></tr> <tr><td>1</td><td>-2</td></tr> <tr><td>4</td><td>1</td></tr> <tr><td>9</td><td>6</td></tr> </table>	x	y	0	-3	1	-2	4	1	9	6
x	y																				
$0-3$	-3																				
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$4-3$	1																				
$9-3$	6																				
x	y																				
0	-3																				
1	-2																				
4	1																				
9	6																				

13NC. Use parameter shifts to write the equation which transforms $f(x)$ to $g(x)$:

$f(x)$



$g(x)$

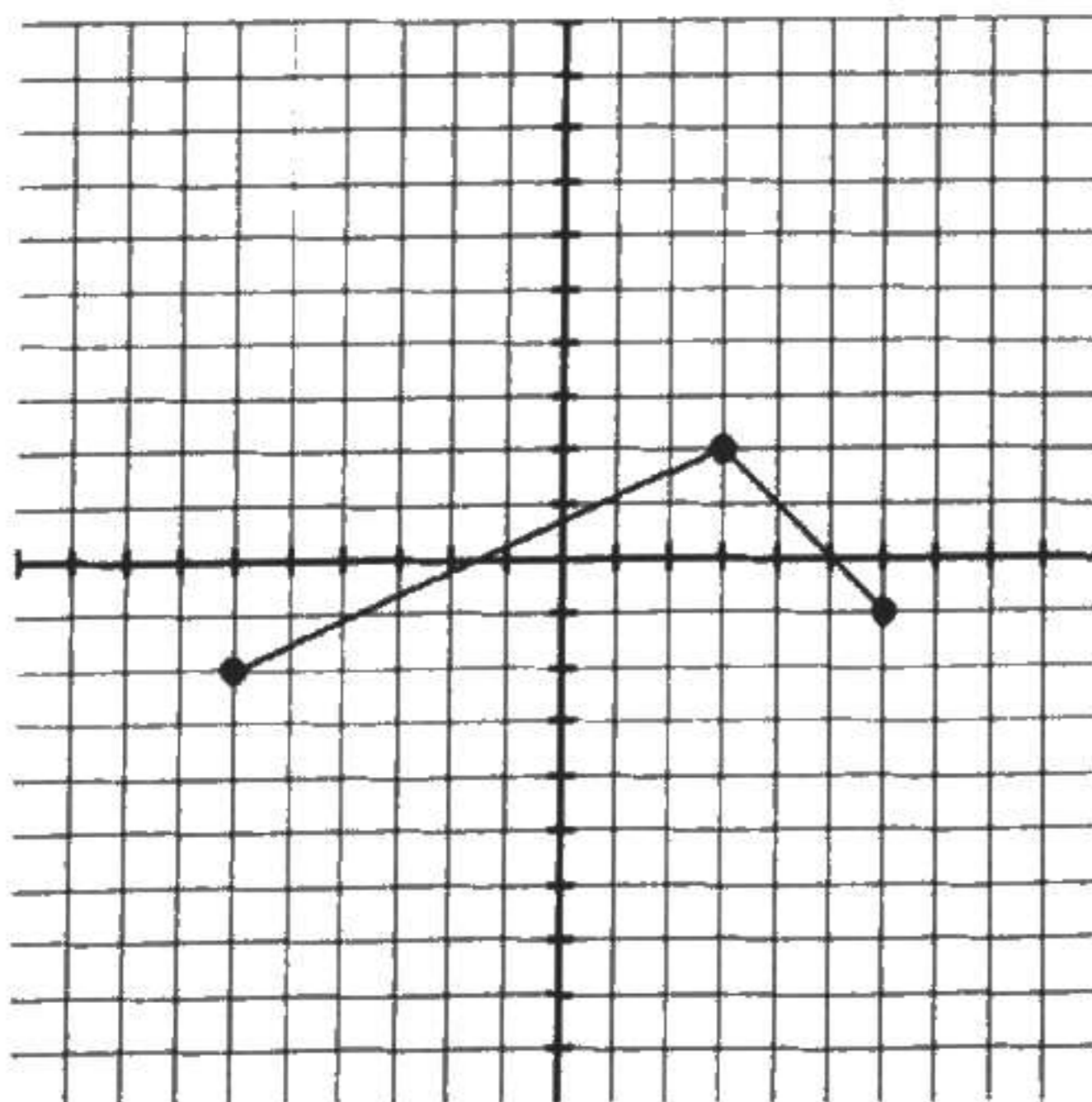


$a = \frac{2}{1} = 1$ $b = \frac{6}{6} = 1$

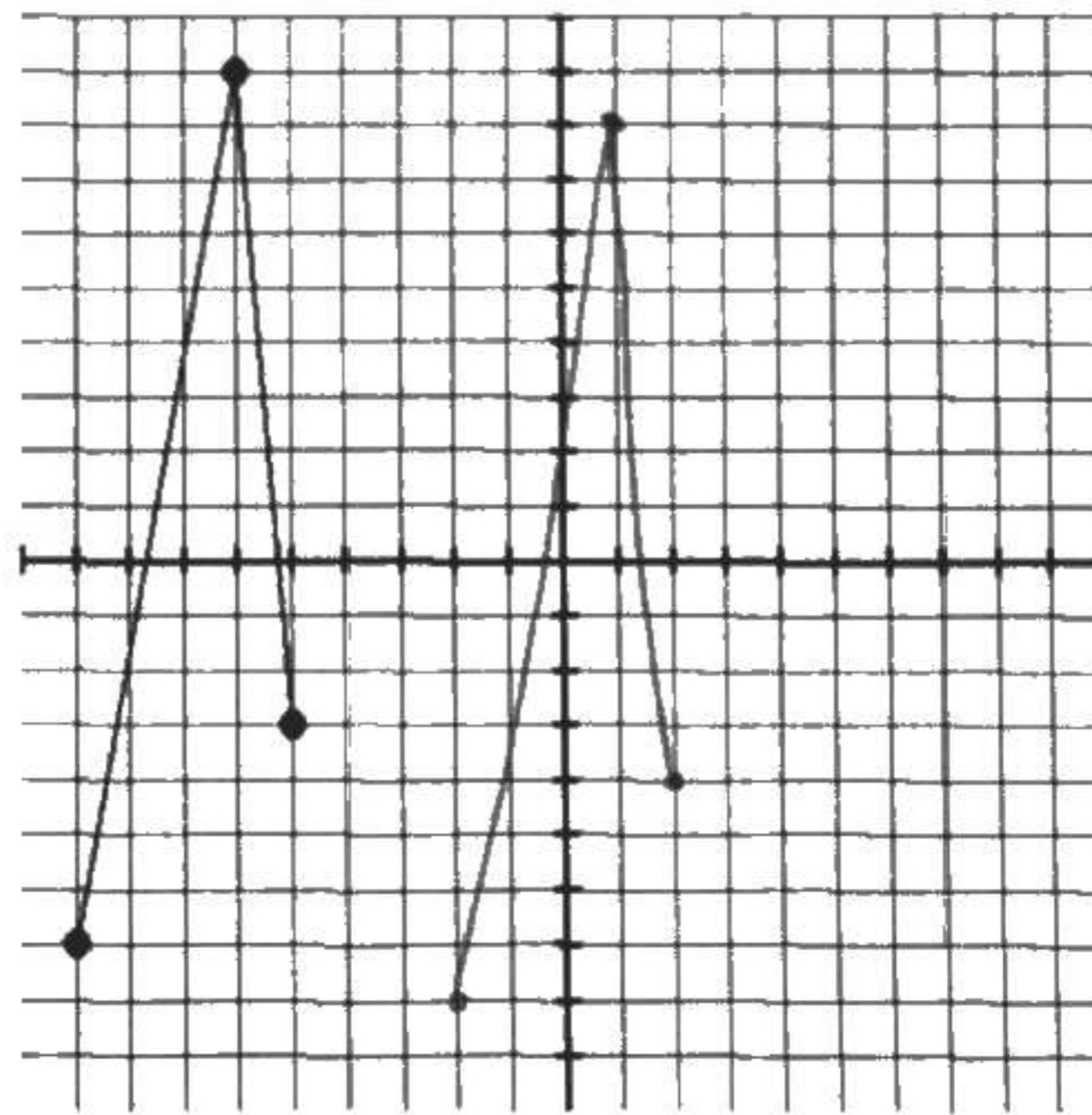
$g(x) = f(x - 1) + 1$

14NC. Use parameter shifts to write the equation which transforms $f(x)$ to $g(x)$:

$f(x)$



$g(x)$



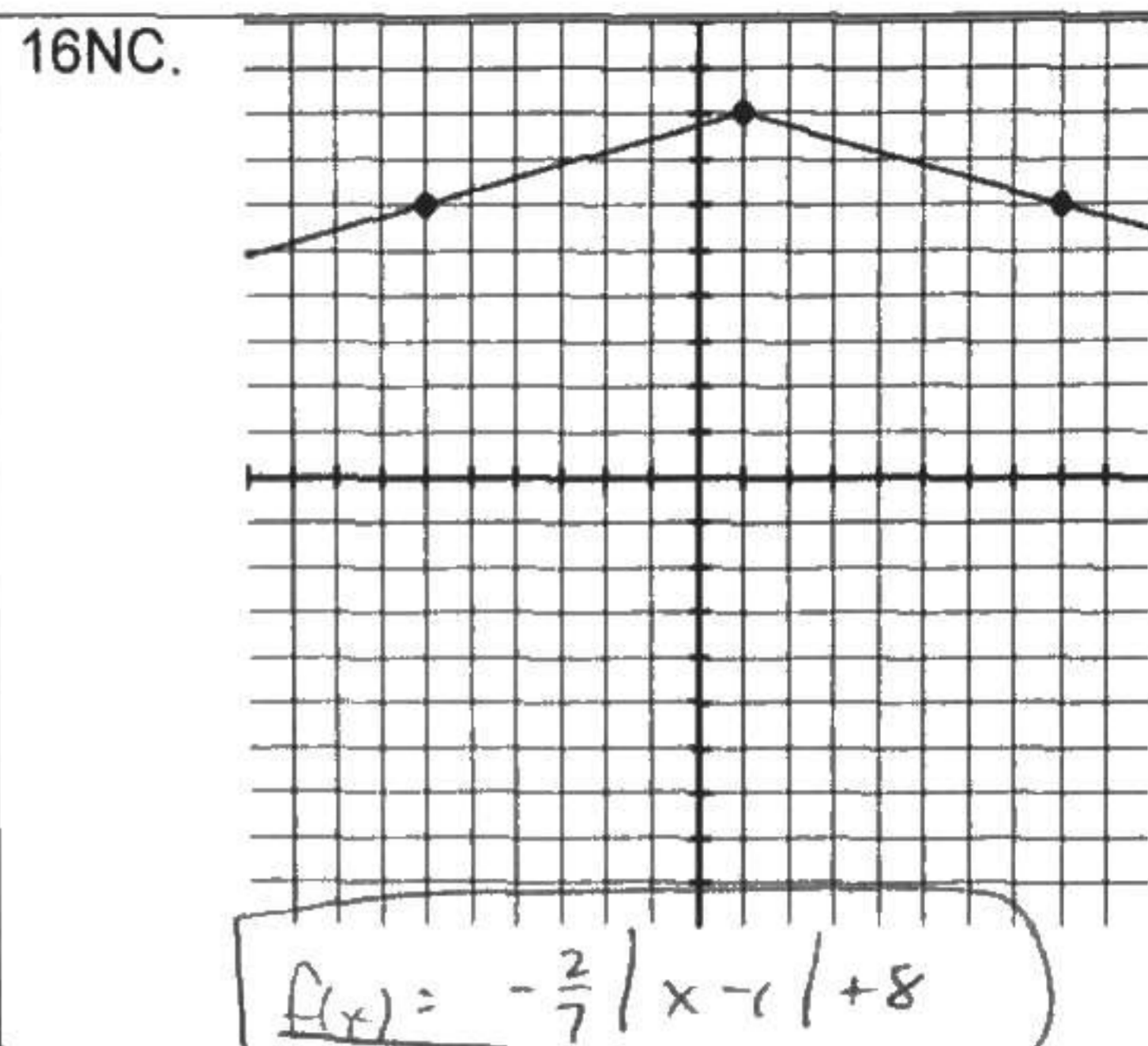
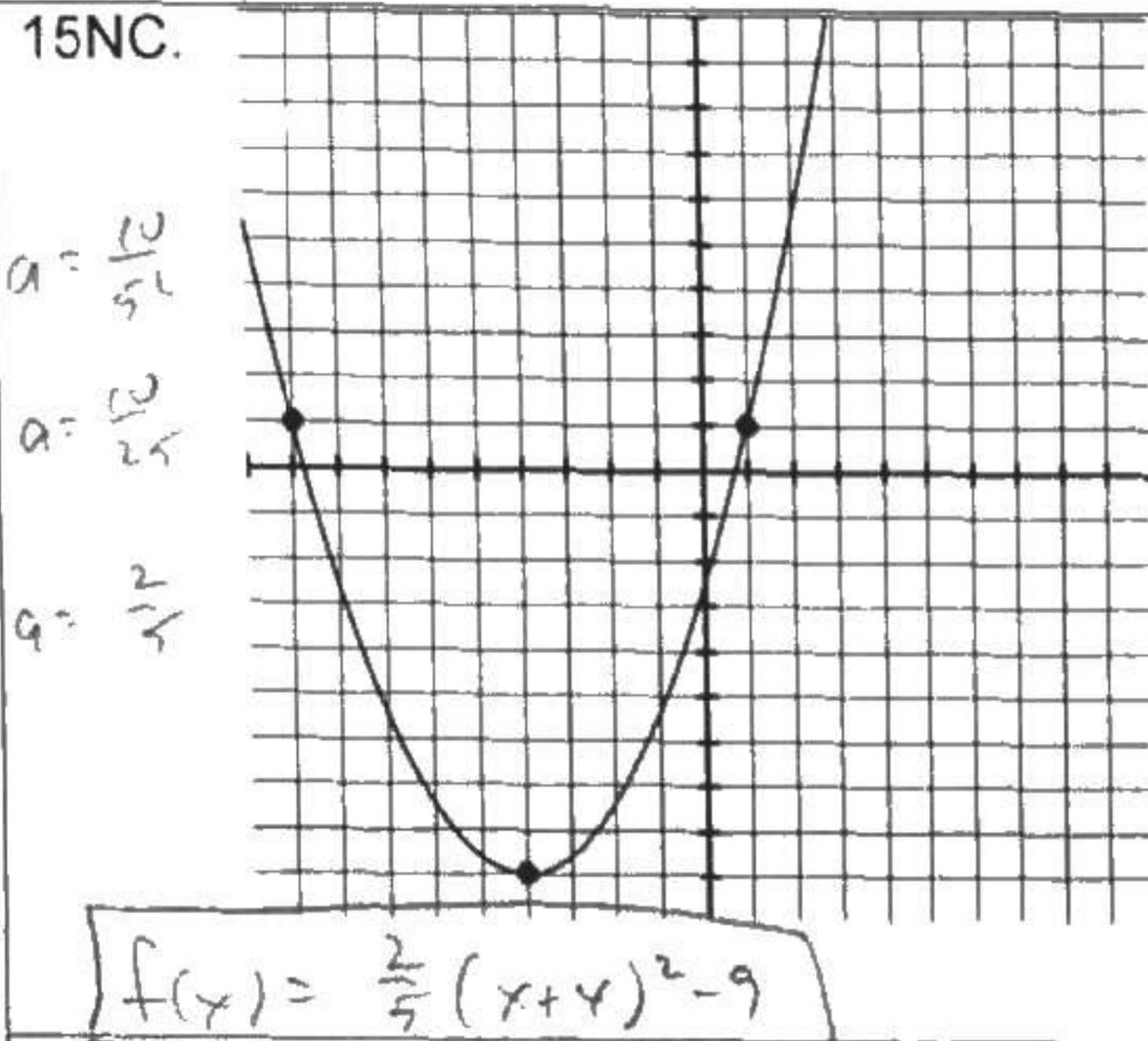
$a = \frac{6}{1} = 6$ $a = 4$ $b = \frac{12}{4} = 3$ $b = 3$

$g(x) = 4f[3(x + 7)] + 1$

x	y
-6 (1/3)	-2 (4)
-3 (1/3)	2 (4)
6 (1/3)	-1 (4)

x	y
-2	-8
1	2
2	-4

Use your knowledge of parent functions and parameter shifts to write equations of the following graphs:



Use the following piecewise function to answer problems 17 and 18:

$$f(x) = \begin{cases} 3x - 1 & \text{if } x \leq -7 \\ 3(x - 8)^2 + 4 & \text{if } -7 < x \leq 10 \\ |2x - 11| - 8 & \text{if } x > 10 \end{cases}$$

17NC. Evaluate $f(10)$

$$f(10) = 3(10 - 8)^2 + 4$$

$$= 16$$

18NC. Evaluate $f(20)$

$$f(20) = |2(20) - 11| - 8$$

$$= 21$$

19NC. Simplify:

$$\sqrt{1350}$$

$$5 \cdot 3 \sqrt{2 \cdot 3}$$

$$15\sqrt{6}$$

$$\begin{array}{c}
 1350 \\
 / \quad \backslash \\
 10 \quad 135 \\
 / \quad \backslash \quad / \quad \backslash \\
 2 \quad (5) \quad 27 \quad (5) \\
 / \quad \backslash \quad / \quad \backslash \\
 3 \quad 3 \quad 3 \quad 3 \\
 (3) \quad (3)
 \end{array}$$

20NC. Simplify:

$$\sqrt{30x^{15}y^{20}}$$

$$x^7 y^{10} \sqrt{30x}$$

$$\begin{array}{c}
 30 \\
 / \quad \backslash \\
 3 \quad 10 \\
 / \quad \backslash \\
 2 \quad 5
 \end{array}$$

21NC. Write the standard form of the equation of the line that passes through $(-5, -10)$ and is perpendicular to the line whose equation is $y = \frac{4}{7}x - 2$.

$$y - y_1 = m(x - x_1)$$

$$y + 10 = -\frac{7}{4}(x + 5)$$

$$(y + 10 = -\frac{7}{4}(x + 5)) \cdot 4$$

$$4(y + 10) = -7(x + 5)$$

$$4y + 40 = -7x - 35$$

$$\boxed{7x + 4y = -75}$$

standard form:

$$Ax + By = C$$

No Fractions

A cannot be negative

22NC. Write the standard form of the equation of the line that passes through $(6, 7)$ and is parallel to the line whose equation is $y = -8x + 3$.

$$y - y_1 = m(x - x_1)$$

$$y - 7 = -8(x - 6)$$

$$y - 7 = -8x + 48$$

$$\boxed{8x + y = 55}$$

23NC. Solve by factoring:

$$10x^2 - 12 = 7x$$

$$10x^2 - 7x - 12 = 0$$

$$(5x + 4)(2x - 3) = 0$$

$$5x + 4 = 0 \quad 2x - 3 = 0$$

$$5x = -4 \quad 2x = 3$$

$$\boxed{x = -\frac{4}{5}} \quad \boxed{x = \frac{3}{2}}$$

24NC. Solve by factoring:

$$12x^2 = 41x - 35$$

$$12x^2 - 41x + 35 = 0$$

$$(3x - 5)(4x - 7) = 0$$

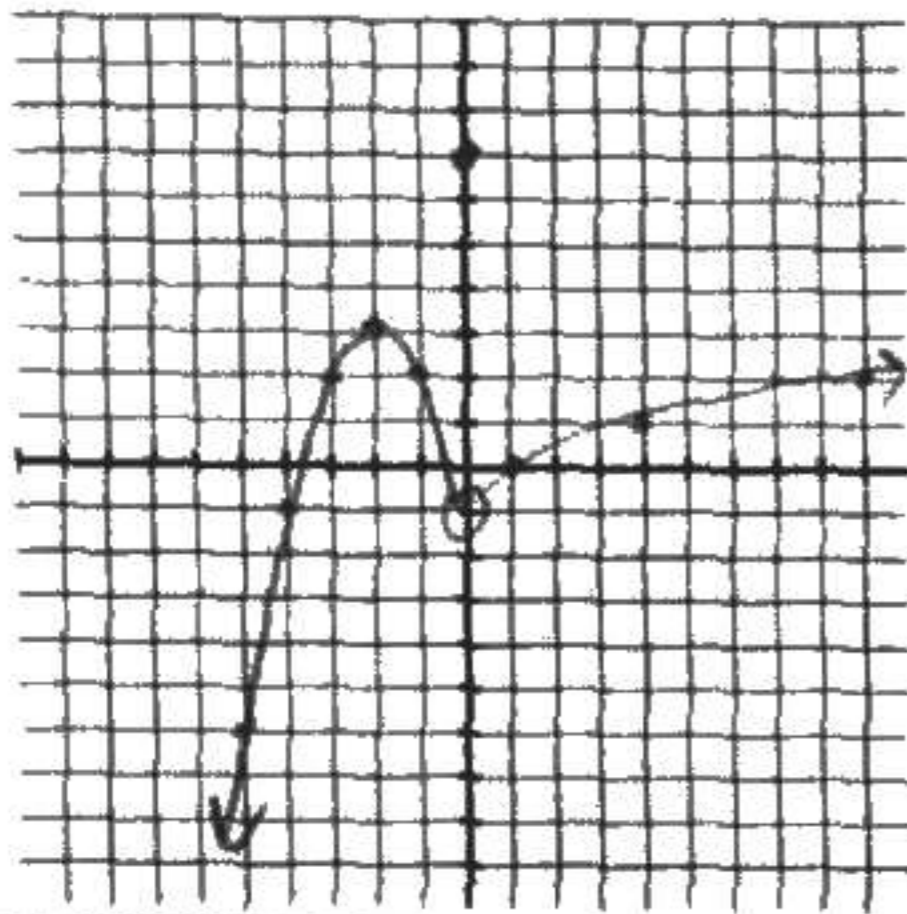
$$3x - 5 = 0 \quad 4x - 7 = 0$$

$$3x = 5 \quad 4x = 7$$

$$\boxed{x = \frac{5}{3}} \quad \boxed{x = \frac{7}{4}}$$

For the following piecewise functions, draw the graph and state the intercepts and domain and range:

25NC. $f(x) = \begin{cases} -(x+2)^2 + 3 & \text{if } x < 0 \\ 7 & \text{if } x = 0 \\ \sqrt{x} - 1 & \text{if } 0 < x \leq 4 \end{cases}$



Domain: $(-\infty, \infty)$
Range: $(-\infty, \infty)$

y-intercept: $(0, 7)$

x-intercepts: $(-2 \pm \sqrt{3}, 0), (1, 0)$

$$\begin{aligned} -(x+2)^2 + 3 &= 0 \\ -(x+2)^2 &= -3 \\ (x+2)^2 &= 3 \\ x+2 &= \pm\sqrt{3} \\ x &= -2 \pm \sqrt{3} \end{aligned}$$

26NC. $f(x) = \begin{cases} 2x - 1 & \text{if } x \leq -2 \\ x^2 - 9 & \text{if } -2 < x \leq 1 \\ -(x-3)^2 + 1 & \text{if } x > 1 \end{cases}$



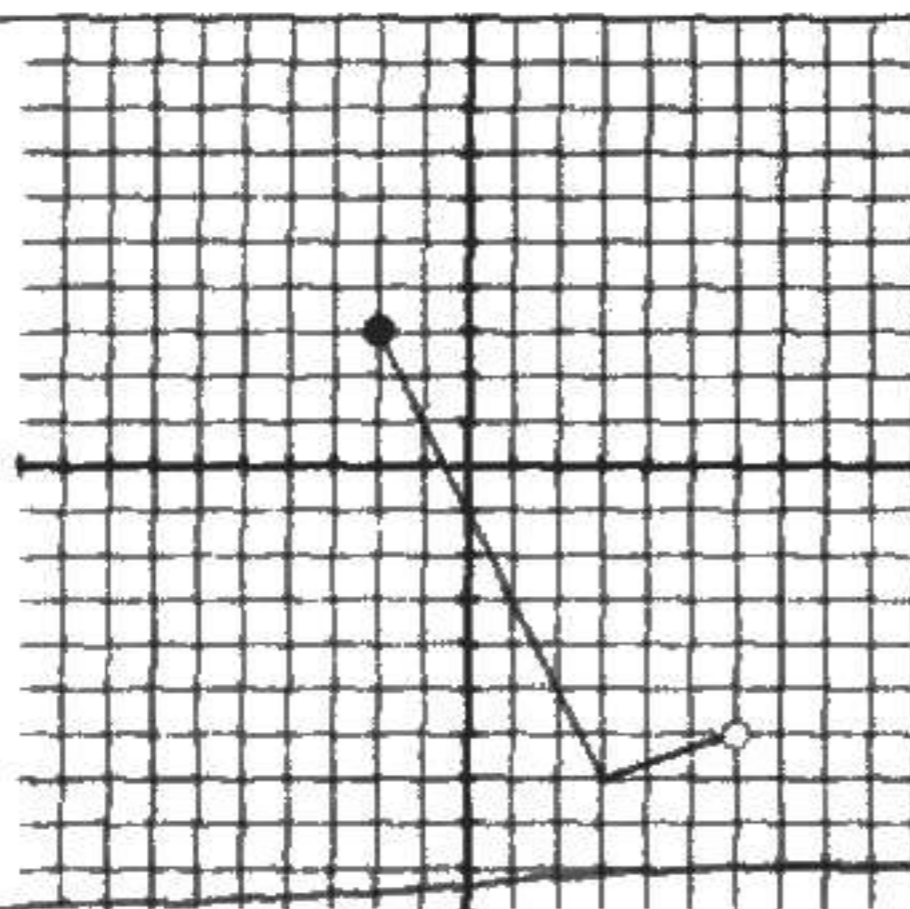
Domain: $(-\infty, \infty)$
Range: $(-\infty, 1]$

y-intercept: $(0, -9)$

x-intercepts: $(2, 0), (4, 0)$

For the following piecewise functions, find the equation, intercepts and state the domain and range:

27NC.



$$\begin{aligned} -2x - 1 &= 0 \\ -2x &= 1 \\ x &= -\frac{1}{2} \end{aligned}$$

$$f(x) = \begin{cases} -2x - 1 & \text{if } -2 \leq x \leq 3 \\ \frac{1}{2}(x-3) - 7 & \text{if } 3 < x < 6 \end{cases}$$

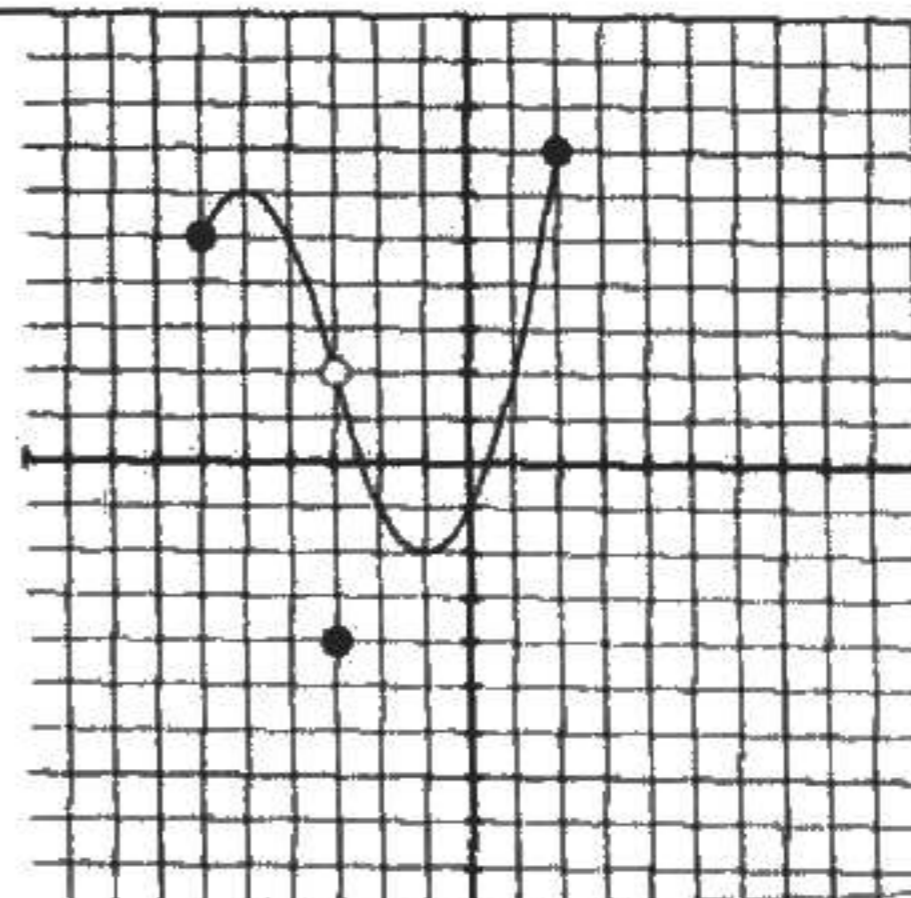
Domain: $[-2, 6)$

Range: $[-7, 3]$

y-intercept: $(0, -1)$

x-intercept: $(-\frac{1}{2}, 0)$

28NC.



$$\begin{aligned} (x+1)^2 - 2 &= 0 \\ (x+1)^2 &= 2 \\ x+1 &= \pm\sqrt{2} \\ x &= -1 \pm \sqrt{2} \end{aligned}$$

$$f(x) = \begin{cases} -(x+5)^2 + 6 & \text{if } -6 \leq x < -3 \\ -4 & \text{if } x = -3 \\ (x+1)^2 - 2 & \text{if } -3 < x \leq 2 \end{cases}$$

Domain: $[-6, 2]$

Range: $[-4] \cup [-2, 7]$

y-intercept: $(0, -1)$

x-intercepts: $(-1 \pm \sqrt{2}, 0)$