

Solve each equation.

$$1. 3(x+2) + 2(x-4) + 1 = -26$$

$$3x + 6 + 2x - 8 + 1 = -26$$

$$5x - 1 = -26$$

$$5x = -25$$

$$x = -5$$

$$2. 3(2x-1) = 5(x+2) - 2$$

$$6x - 3 = 5x + 10 - 2$$

$$x = 11$$

$$3. 2(3x+5) = 2x+9$$

$$6x + 10 = 2x + 9$$

$$4x = -1$$

$$x = -\frac{1}{4}$$

$$4. 6(x+2) - 2(x-1) = 17$$

$$6x + 12 - 2x + 2 = 17$$

$$4x + 14 = 17$$

$$4x = 3$$

$$x = \frac{3}{4}$$

Solve each inequality.

Graph your answer and write your answer in interval notation.

$$5. 30 - 6x < -3(5 + 7x)$$

$$30 - 6x < -15 - 21x$$

$$15x < -45$$

$$x < -3$$



$$6. 33 + 4x \leq -(x+7)$$

$$33 + 4x \leq -x - 7$$

$$5x \leq -40$$

$$x \leq -8$$



$$7. 2(6+4x) \geq 12 - 8x$$

$$12 + 8x \geq 12 - 8x$$

$$16x \geq 0$$

$$x \geq 0$$



$$8. -5(2x+7) + x < -x - 11$$

$$-10x - 35 + x < -x - 11$$

$$-9x - 35 < -x - 11$$

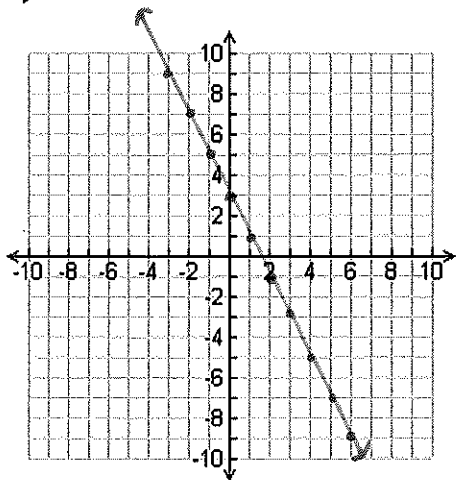
$$-8x < 24$$

$$x > -3$$

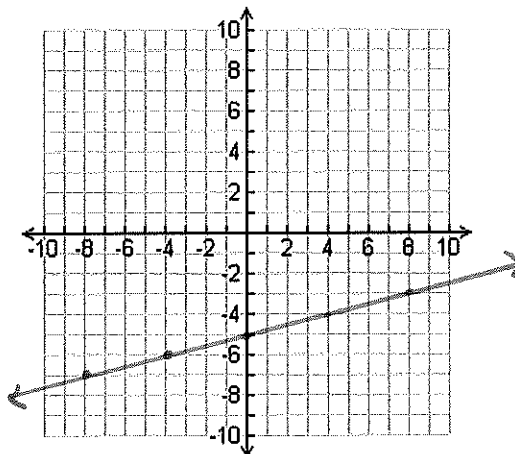


Graph each linear equation or linear inequality.

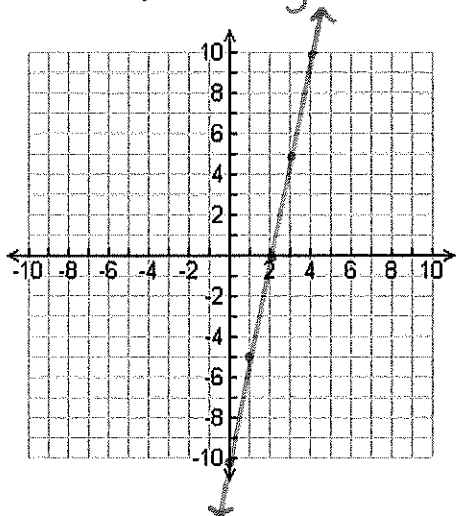
9. $y = -2x + 3$



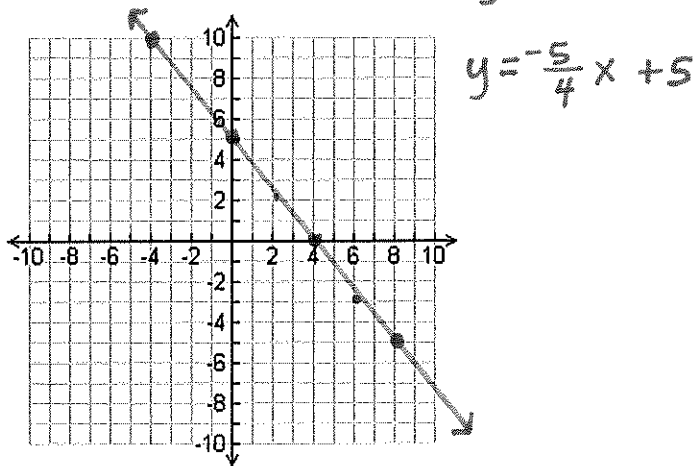
10. $y = \frac{1}{4}x - 5$



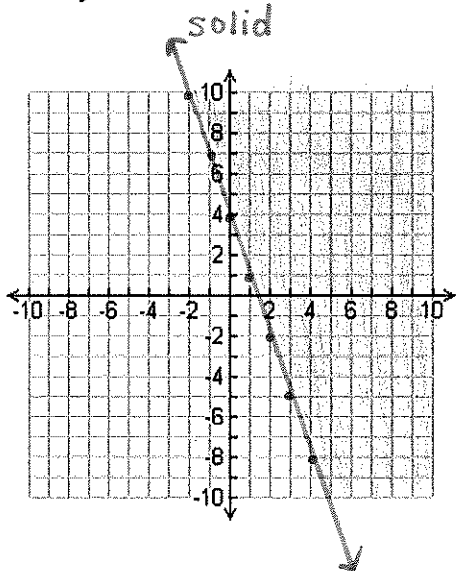
11. $5x - y = 10$ $y = 5x - 10$



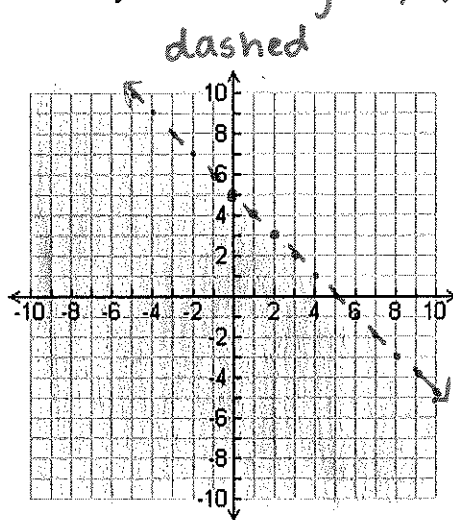
12. $5x + 4y = 20$ $x = 4$ $y = 5$



13. $y \geq -3x + 4$



14. $2x + 2y < 10$ $y < -x + 5$

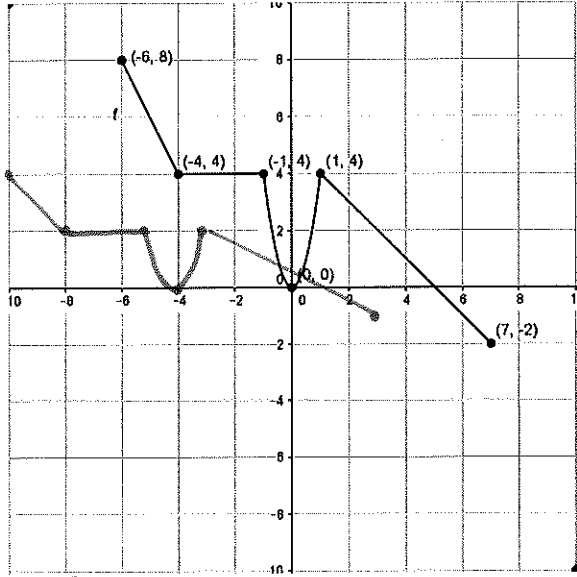
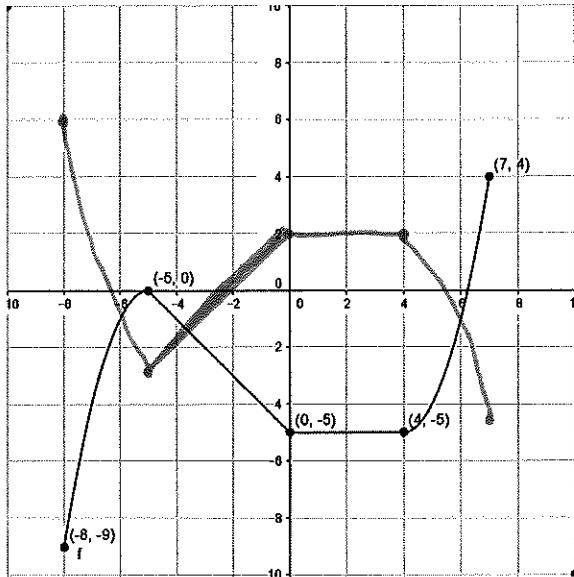


Use a table to perform each transformation of $y = f(x)$.

Graph your answers on the same coordinate plane as the original function.

15. Reflect over the x-axis, down 3

16. Vertical shrink by $\frac{1}{2}$, left 4

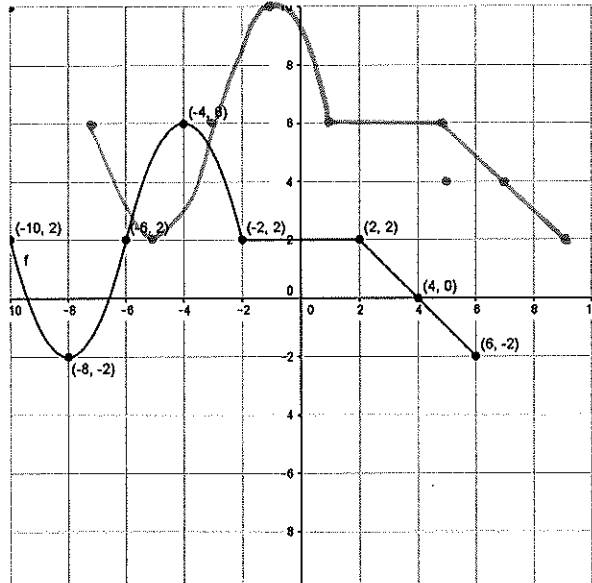
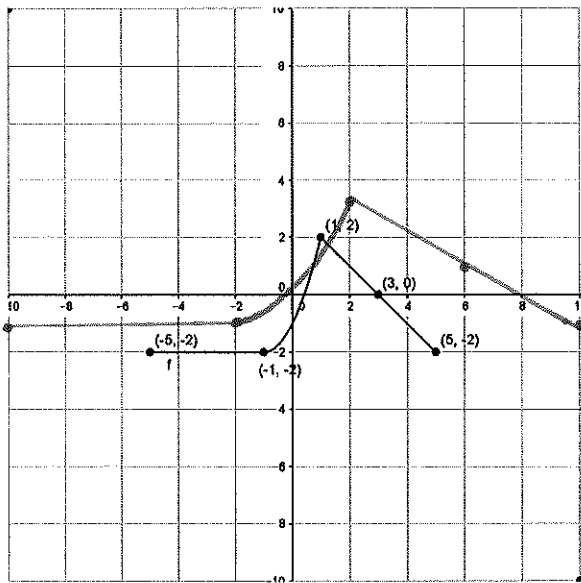


X	y	∴	X	-y-3
-8	-9		-8	6
-5	0		-5	-3
0	-5		0	2
4	-5		4	2
7	4		7	-7

X	y	∴	X-4	$\frac{1}{2}y$
-6	8		-10	4
-4	4		-8	2
-1	4		-5	2
0	0		-4	0
1	4		-3	2
7	-2		3	-1

17. Horizontal stretch by 2, up 1

18. Up 4 and right 3



X	y	∴	2x	y+1
-5	-2		-10	-1
-1	-2		-2	-1
1	2		2	3
3	0		6	1
5	-2		10	-1

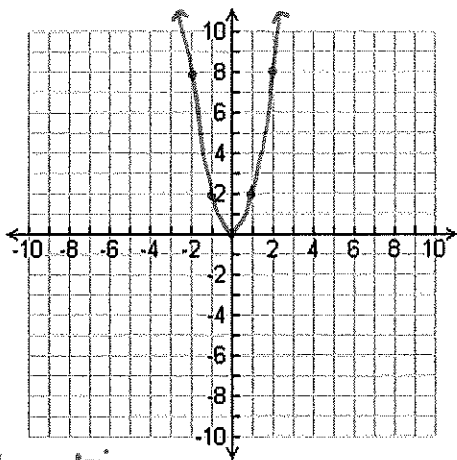
X	y	X	y	X+3	y+4
-10	2	-2	2	-7	6
-8	-2	2	2	-5	2
-6	2	4	0	-3	6
-4	6	6	-2	-1	10

1	6
5	6
7	4
9	2

Graph the data. Determine the parent function, domain and range.

19.

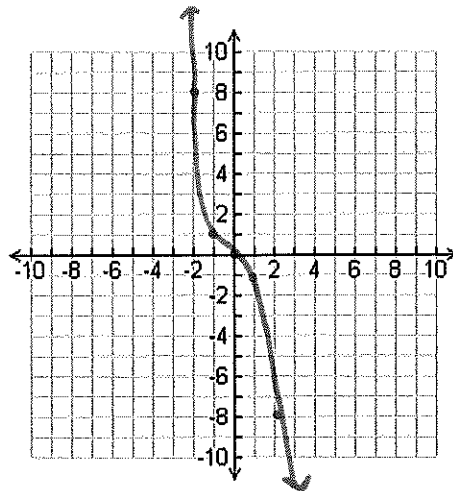
x	-2	-1	0	1	2
y	8	2	0	2	8



quadratic
 $D: \mathbb{R}$
 $R: [0, \infty)$

20.

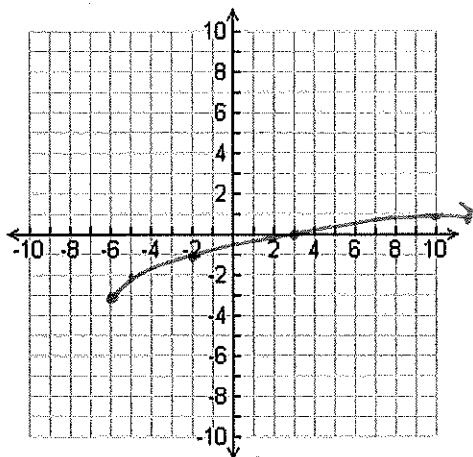
x	-2	-1	0	1	2
y	8	1	0	-1	-8



cubic
 $D: \mathbb{R}$
 $R: \mathbb{R}$

21.

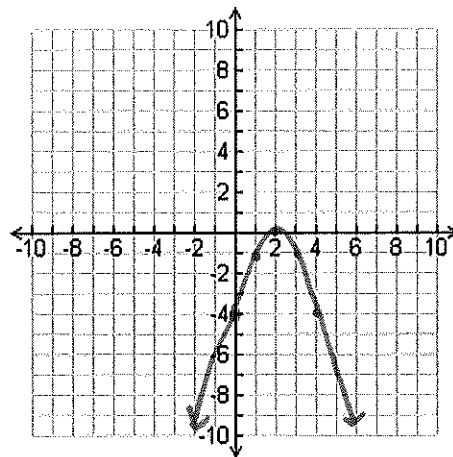
x	-6	-5	-2	3	10
y	-3	-2	-1	0	1



square root
 $D: [-6, \infty)$
 $R: [-3, \infty)$

22.

x	0	1	2	3	4
y	-4	-1	0	-1	-4



quadratic
 $D: \mathbb{R}$
 $R: (-\infty, 0]$

Graph the following on your graphing calculator.
Determine the parent function, domain and range.

23. $g(x) = \sqrt{-x+1}$
square root
D: $(-\infty, 1]$
R: $[0, \infty)$

24. $g(x) = -\left(\frac{1}{2}x\right)^2$
quadratic
D: \mathbb{R}
R: $(-\infty, 0]$

25. $g(x) = (x-2)^3 - 3$
cubic
D: \mathbb{R} R: \mathbb{R}

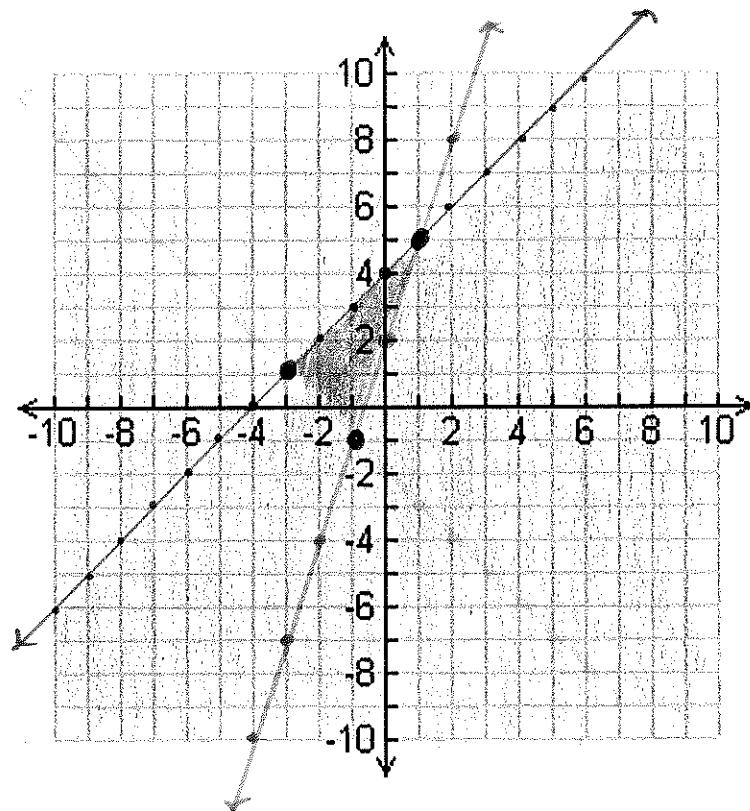
26. $g(x) = (x+4)^2 - 6$
quadratic
D: \mathbb{R} R: $[-6, \infty)$

Graph the system of inequalities. Name the points of interest and determine which points maximize and minimize the objective function.

27.

$y \geq -x - 2$
 $y \geq 3x + 2$
 $y \leq x + 4$
 $f(x, y) = -3x + 5y$

$(-3, 1) = 14$
 $(-1, -1) = -2$ min
 $(1, 5) = 22$ max



28. A clothing company makes jackets and pants. Each jacket requires 1 hour of cutting and 4 hours of sewing. Each pair of pants requires 2 hours of cutting and 2 hours of sewing. The total time per day available for cutting is 10 hours and for sewing is 32 hours. If the profit on a jacket is \$14 and on a pair of pants is \$8, determine the number each that should be made each day to maximize profit. What is the maximum profit?

x - jackets $x + 2y \leq 10$ $y \leq -\frac{1}{2}x + 5$

y - pants $4x + 2y \leq 32$ $y \leq -2x + 8$

$x \geq 0$
 $y \geq 0$

$(2, 4)$

2 jackets,
4 pairs of pants
\$60

$f(x, y) = 14x + 8y$