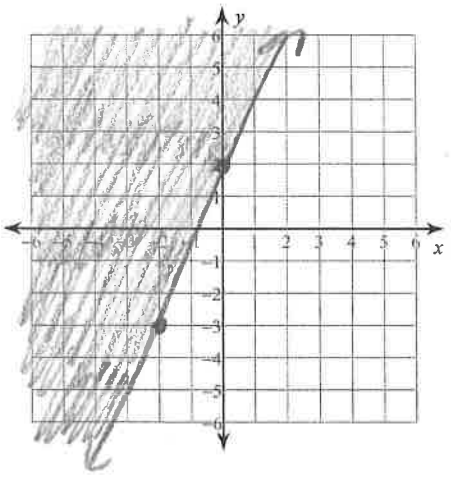
Algebra 1 Name KEY

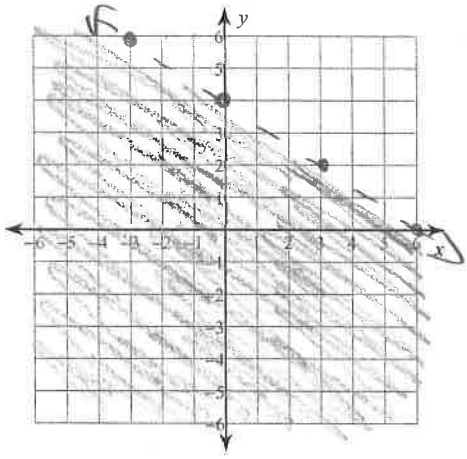
Unit 6 Review WS

Sketch the graph of each linear inequality.

1) $y \geq \frac{5}{2}x + 2$

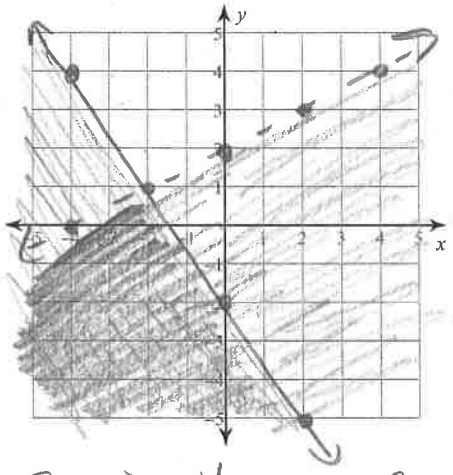


2) $y < -\frac{2}{3}x + 4$



Sketch the solution to each system of inequalities.

3) $x - 2y \geq -4$
$3x + 2y \leq -4$



$x - 2y \geq -4$
$-x \quad -x$

$-2y \geq -x - 4$

$\frac{-2y}{-2} \geq \frac{-x}{-2} - \frac{4}{-2}$

$y \leq \frac{1}{2}x + 2$

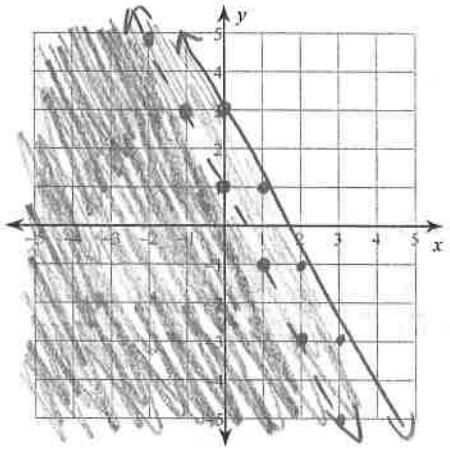
$3x + 2y \leq -4$
$-3x \quad -3x$

$2y \leq -3x - 4$

$\frac{2y}{2} \leq \frac{-3x}{2} - \frac{4}{2}$

$y \leq -\frac{3}{2}x - 2$

4) $2x + y < 1$
$2x + y \leq 3$



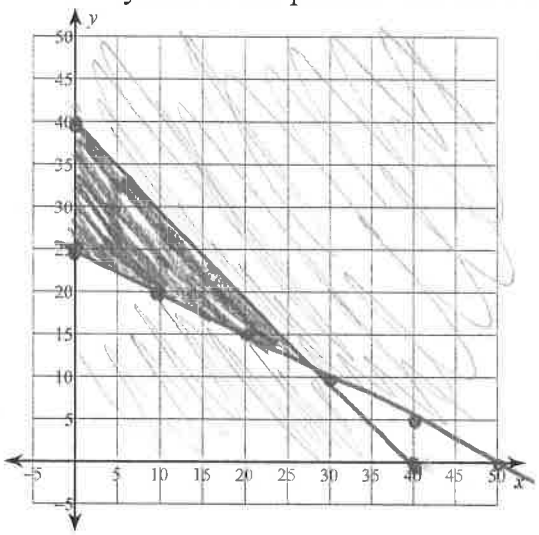
$2x + y < 1$
$-2x \quad -2x$

$y < -2x + 1$

$2x + y \leq 3$
$-2x \quad -2x$

$y \leq -2x + 3$

5) You can work a total of no more then ~~41 hours~~ 40 each week at your two jobs. Housecleaning pays $5 per hour and your sales job pays $10 per hour. You need to earn at least $250 each week to pay your bills. Write a system of inequalities that shows the various numbers of hours you can work at each job.



X - housecleaning y - Sales

$x + y \le 41$ | $5x + 10y \ge 250$

$-x \quad -x$ | $-5x \quad -5x$

$y \le -x + 41$ | $\frac{10y}{10} \ge \frac{-5x}{10} + \frac{250}{10}$

$y \ge -\frac{1}{2}x + 25$

Solve each equation.

6) $6\left|\frac{x}{7}\right| = 6$

$\frac{6}{6}$

$\left|\frac{x}{7}\right| = 1$

$\frac{7}{1}\cdot\frac{x}{7} = 1\cdot 7$ $\quad \frac{7}{-1}\cdot\frac{x}{7} = -1\cdot 7$

$x = 7 \quad x = -7$

7) $-4 - 10|7 + a| = -44$

$+4 \quad +4$

$\frac{-10|7+a|}{-10} = \frac{-40}{-10}$

$|7 + a| = 4$

$7 + a = 4$ | $7 + a = -4$

$-7 \quad -7$ | $-7 \quad -7$

$a = -3$ | $a = -11$

8) $9|-a + 7| - 7 = 101$

$+7 \quad +7$

$\frac{9|-a+7|}{9} = \frac{108}{9}$

$|-a + 7| = 12$

$-a + 7 = 12$ | $-a + 7 = -12$

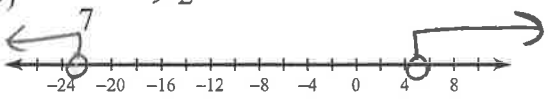
$-7 \quad -7$ | $-7 \quad -7$

$\frac{-a}{-1} = \frac{5}{-1}$ | $\frac{-a}{-1} = \frac{-19}{-1}$

$a = -5$ | $a = 19$

Solve each inequality and graph its solution.

9) $\frac{|m+9|}{7} > 2$



$\frac{|m+9|}{7} > 2 \cdot 7$

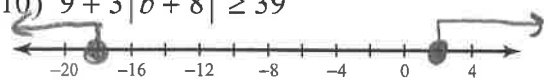
$|m+9| > 14$

$m+9 > 14$ OR $m+9 < -14$

$-9 \quad -9 \qquad -9 \quad -9$

$m > 5$ OR $m < -23$

10) $9 + 3|b+8| \geq 39$



$-9 \qquad -9$

$\frac{3|b+8|}{3} \geq \frac{30}{3}$

$|b+8| \geq 10$

$b+8 \geq 10$ OR $b+8 \leq -10$

$-8 \quad -8 \qquad -8 \quad -8$

$b \geq 2$ OR $b \leq -18$

11) $10 - 8|-5n+8| > -6$

$-10 \qquad -10$

$\frac{-8|-5n+8|}{-8} > \frac{-16}{-8}$

$|-5n+8| < 2$

$|-5n+8| < 2$

$-5n+8 < 2$ AND $-5n+8 > -2$

$-8 \quad -8 \qquad -8 \quad -8$

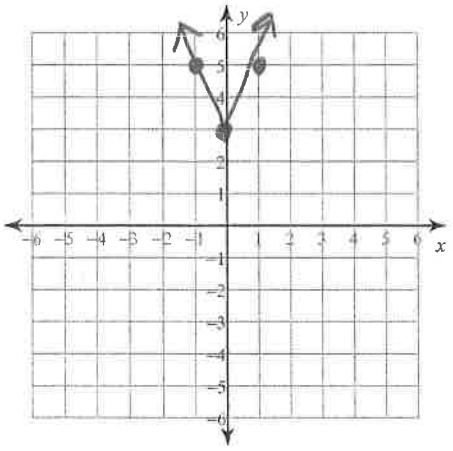
$\frac{-5n}{-5} < \frac{-6}{-5} \qquad \frac{-5n}{-5} > \frac{-10}{-5}$

$n > 1.2 \qquad n < 2$

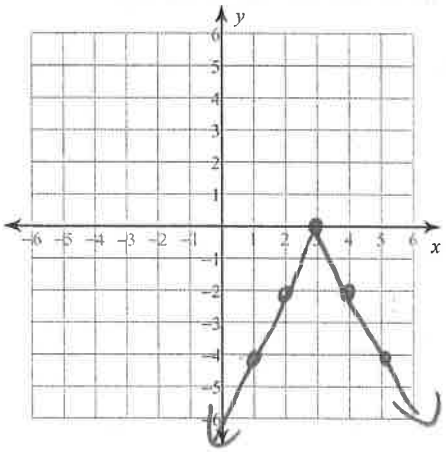
$1.2 < n < 2$

Graph each equation.

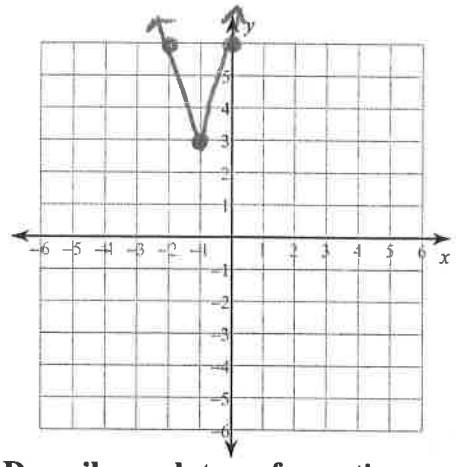
12) $y = 2|x| + 3$



13) $y = -2|x-3|$



14) $y = 3|x+1| + 3$



Describe each transformation.

15) $y = 3|x| + 4$

Vertex (0,4)
Shifted up 4
opens up
Stretched by factor of 3

16) $y = 3|x-2| + 2$

Vertex (2,2)
Shifted right 2, up 2
opens up
Stretched by factor of 3

17) $y = -2|x+3| + 2$

Vertex (-3,2)
Shifted left 3, up 2
opens down
Stretched by factor of 2

Write an absolute value function for each situation.

18) vertex at (3, -7), opening down, stretched by a factor of your choice.

(2)

$y = -2|x-3| - 7$

19) vertex moved down 9 and right 3, opening up, compressed by a factor of (2/3), ~~reflected~~

$y = \frac{2}{3}|x-3| - 9$

20) vertex at (1, 0), opening up, stretched by a factor of 10

$y = 10|x-1|$