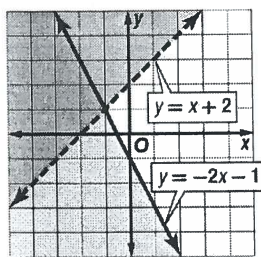


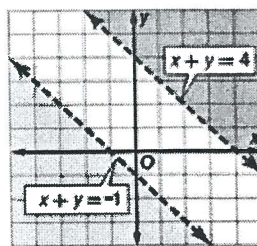
## 6-6 Systems of Inequalities

**Systems of Inequalities** The solution of a system of inequalities is the set of all ordered pairs that satisfy both inequalities. If you graph the inequalities in the same coordinate plane, the solution is the region where the graphs overlap.

**Solution = Overlapping region**



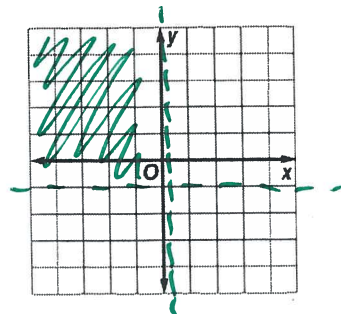
**No Solution = No Overlapping region**



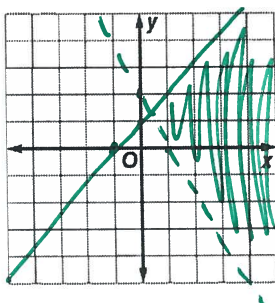
### Exercises

Solve each system of inequalities by graphing.

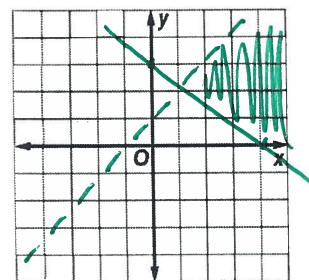
1.  $y > -1$   
 $x < 0$



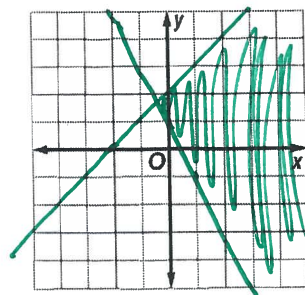
2.  $y > -2x + 2$   
 $y < x + 1$



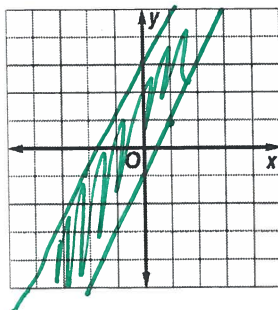
3.  $y < x + 1$   
 $3x + 4y \geq 12$



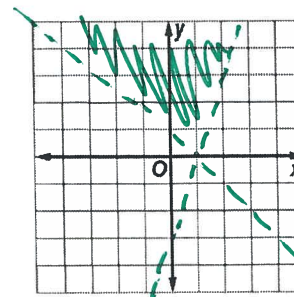
4.  $2x + y \geq 1$   
 $x - y \geq -2$



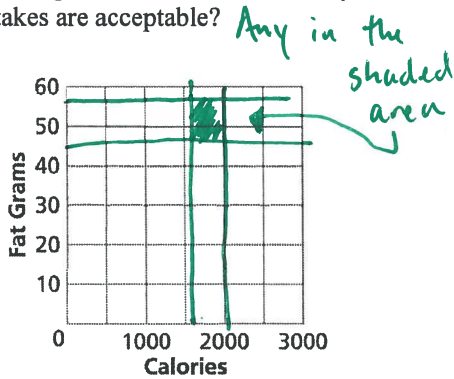
5.  $y \leq 2x + 3$   
 $y \geq -1 + 2x$



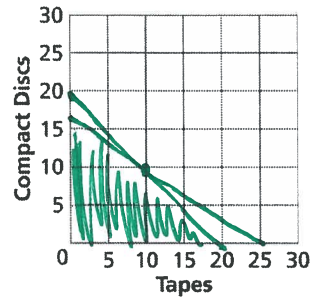
6.  $5x - 2y < 6$   
 $y > -x + 1$



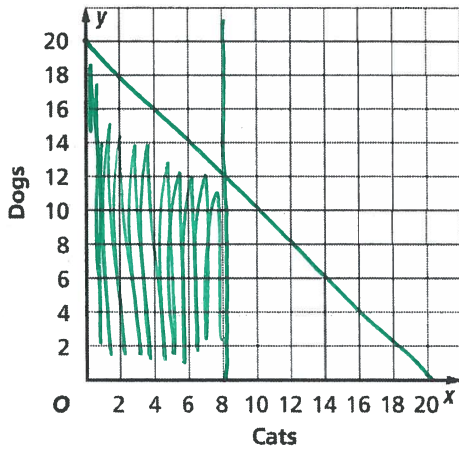
1. **HEALTH** Mr. Flowers is on a restricted diet that allows him to have from 1600 to 2000 Calories per day. His daily fat intake is restricted to between 45 and 55 grams inclusive. What daily Calorie and fat intakes are acceptable?



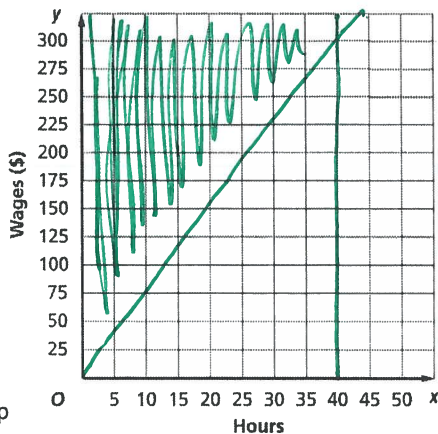
2. **RECREATION** Maria had \$150 in gift certificates to use at a record store. She bought no more than 20 recordings. Each tape cost \$5.95 and each CD cost \$8.95. How many of each type of recording might she have bought?



1. **PETS** Renée's Pet Store never has more than a combined total of 20 cats and dogs and never more than 8 cats. This is represented by the inequalities  $x \leq 8$  and  $x + y \leq 20$ . Solve the system of inequalities by graphing.



2. **WAGES** The minimum wage for one group of workers in Texas is \$7.25 per hour effective Sept. 1, 2008. The graph below shows the possible weekly earnings for a person who makes at least minimum wages and works at most 40 hours. Write the system of inequalities for the graph.



$x \leq 40$   
 $y \geq 7.25x$