7.6 Systems of Linear Inequalities Word Problems

Goal:

Use a system of linear inequalities to model a real-life situation.

Word Problems

- Most of these problems will not give you a slope and y-intercept.
- You will not be writing inequalities in Slope-Intercept Form.
- You will be writing equations in Standard Form.

Standard Form Word Problems

- Figure out what x and y represent.
- Write an inequality for each topic in the problem.

- You can work a total of no more then 41 hours each week at your two jobs. Housecleaning pays \$5 per hour and your sales job pays \$8 per hour. You need to earn at least \$254 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 job

Hours: $x + y \le 41$

Money: $5x + 8y \ge 254$

Fuel x costs \$2 per gallon and fuel y costs \$3 per gallon. You have at most \$18 to spend on fuel.Write and graph a system of linear inequalities to represent this situation.

x = fuel x y = fuel y

Price: $2x + 3y \le 18$ Gallons of x: $x \ge 0$ Gallons of y: $y \ge 0$

A salad contains ham and chicken. There are at most 6 pounds of ham and chicken in the salad. Write and graph a system of inequalities to represent this situation.

x = ham y = chicken

Total Pounds: $x + y \le 6$ Pounds of ham: $x \ge 0$ Pounds of chicken: $y \ge 0$

Mary babysits for \$4 per hour. She also works as a tutor for \$7 per hour. She is only allowed to work 13 hours per week. She wants to make at least \$65. Write and graph a system of inequalities to represent this situation.

x = babysitting y = tutoring

Hours: $x + y \le 13$ Money: $4x + 7y \ge 65$