

Graph this system of inequalities.

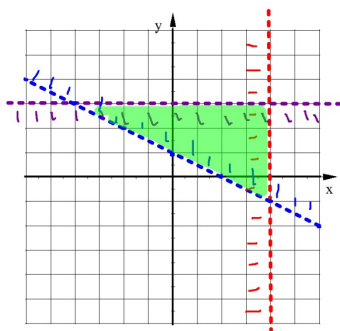
$$x < 4$$

$$y < 3$$

$$4x + 8y > 8$$

$$\begin{aligned} y\text{-int} &= 1 \\ x\text{-int} &= 2 \end{aligned}$$

solution region is shaded in green.

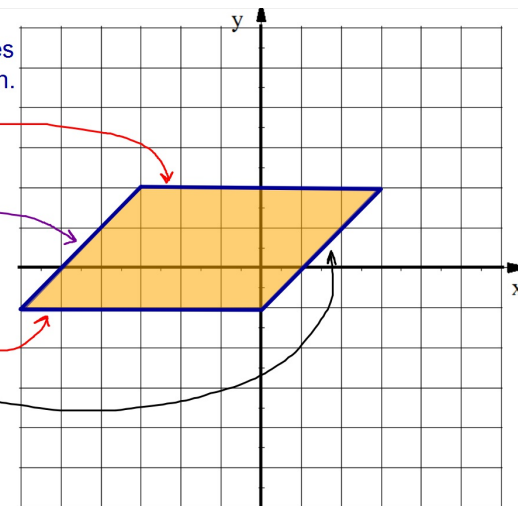


Write a system of inequalities that model the graph shown.

$$-1 \leq y \leq 2$$

$$y \leq x + 5$$

$$y \geq x - 1$$



Model each with an inequality.

1. The elevator can hold up to 2300 pounds.

$$e \leq 2300$$

2. The wheelbarrow can carry no more than 40 bricks.

$$b \leq 40$$

3. The employee needs at least 40 hours of work this week.

$$h \geq 40$$

4. The farmer is going to plant some acres of corn.

$$c > 0$$

5. The rancher raises cows and goats. The can raise no more than 250 animals.

$$c + g \leq 250$$

6. It costs \$40 to produce a chair and \$75 to produce a table. The budget for chairs and tables is \$2000.

$$40c + 75t \leq 2000$$

7. Basketballs cost \$9 each and footballs cost \$24 each.

You can spend no more than \$144 on balls for the two teams.

You only have enough room on the equipment cart for 11 more balls.

F = # of football

B = # of B-Balls

- a) Write a system of **four** inequalities to represent the constraints given.

Constraint: Any restriction or limit on a variable.

$$B + F \leq 11$$

$$B \geq 0$$

$$9B + 24F \leq 144$$

$$F \geq 0$$

You need to create work group of people to work on a project. There needs to be at least 15 people in the group. The group can contain no more than 8 men.

Model this situation with a system of inequalities.

$$\begin{aligned} m + w &\geq 15 \\ m &\leq 8 \\ w &\geq 7 \\ m &\geq 0 \\ w &\geq 0 \end{aligned}$$

$$\begin{aligned} m &= \# \text{ men} \\ w &= \# \text{ women} \end{aligned}$$

You can work 20 hours per week. You need to earn at least \$92 to cover your weekly expenses. Your dog-walking job pays \$7.50 per hour and your job as a car wash attendant pays \$6 per hour. Write a system of linear inequalities that model this situation.

$$\begin{aligned} d &= \# \text{ hrs dog walking} \\ c &= \# \text{ hrs car washing} \end{aligned}$$

$$\begin{aligned} d + c &\leq 20 \\ 7.50d + 6c &\geq 92 \\ d &\geq 0 \quad c \geq 0 \end{aligned}$$

You are going to cut lawns and rake leaves for money this weekend.

A lawn takes 40 minutes to cut and leaves take 70 minutes to rake.

You have at most 8 hours to work.

You want to cut between 2 and 8 lawns.

You want to rake at least three times as many lawns as you cut.

Write a system of inequalities to model this situation.

c = # lawns cut
 r = # lawns raked

$$\begin{aligned} 40c + 70r &\leq 480 \quad \leftarrow 8 \text{ hrs} = 8(60) \text{ minutes} \\ 2 \leq c \leq 8 \quad c &\geq 0 \\ r &\geq 3c \quad r \geq 0 \end{aligned}$$

You can now finish Hwk #17

Sec 3-3

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Problems 10, 16, 17, 24-26, 40(a), 50, 51

You must use the sheet I'll give you!