

Practice 8

For use with Section 1-8

Graph the feasible region for each system of inequalities. Label each vertex with its coordinates.

1. $x \geq 0$

$y \geq 0$

$x + y \leq 8$

$2x + 3y \leq 21$

2. $a \geq 0$

$2 \leq b \leq 6$

$2a \leq b$

3. $v \geq 0$

$6 \leq u \leq 15$

$2u + 3v \leq 36$

4. $x \geq 1$

$y \geq 1$

$2x + y \leq 6$

$x + 3y \leq 8$

Model each situation using a linear combination.

- 5.** Rosa Martinez, who does product research for a breakfast food company, wants to blend two grain mixes to produce a breakfast cereal. Let x be the number of grams of Mix A in a serving and let y be the number of grams of Mix B.
- A serving is at most 55 g. Write an inequality that expresses this constraint on x and y .
 - Mix A is 16% fat. Mix B is 8% fat. Rosa wants the total fat content of a serving to be no more than 6 g. Write an inequality that expresses this constraint on x and y .
 - Graph the feasible region that represents all possible combinations of the two mixes in a serving.
 - Suppose Mix A costs 0.3 cents per gram and Mix B costs 0.2 cents per gram to produce. Find the values of x and y that minimize the cost of one serving.
- 6.** Jae Ho Kim wants to take out ads for his computer repair business in the Daily Herald-Gazette and the Times-Tribune. Let x be the number of column inches he takes in the Daily Herald-Gazette and let y be the number in the Times-Tribune.
- Jae Ho wants the total column inches in both papers to be at most 32. Write an inequality that expresses this constraint.
 - The cost of each column inch of advertising in the Daily Herald-Gazette is \$40 and the cost of each column inch of advertising in the Times-Tribune is \$16. Jae Ho wants to spend a total of at most \$800. Write an inequality that expresses this constraint.
 - The Daily Herald-Gazette has 4000 readers, while the Times-Tribune has 3000. What combination of x and y will maximize the exposure of Jae Ho's ads?
(exposure = column inches \times readers)