

LESSON
6.6**Challenge Practice***For use with the lesson "Solve Systems of Linear Inequalities"***Graph the system of inequalities.**

- $y \geq |x|$
 $y \leq 6 - |x|$
- $|x| \leq 2$
 $|y| \leq 2$

In Exercises 3–6, use the following information.

Your school club decides to hold a fundraiser by selling trail mix, and you are in charge of making the mix. You plan to offer two mixes, Country Blend and Premium Mix, each sold in one pound bags. Each pound of Country Blend consists of $\frac{1}{2}$ pound of toasted oats, $\frac{1}{4}$ pound of peanuts, and $\frac{1}{4}$ pound of raisins. Each pound of Premium Mix consists of $\frac{1}{4}$ pound of toasted oats, $\frac{1}{4}$ pound of peanuts, and $\frac{1}{2}$ pound of raisins. You have available to use at most 40 pounds of oats, 22 pounds of peanuts, and 35 pounds of raisins.

- Model the situation above by letting x represent the number of pounds of Country Blend and y represent the number of pounds of Premium Mix. Your algebraic model should be a system of five inequalities. (Remember that you cannot make a negative number of pounds of trail mix.)
- Graph the system of inequalities from Exercise 3.
- You sell the trail mix for \$5 per pound for Country Blend and \$7 per pound for Premium Mix. How many bags of each type of mix should you make in order to maximize your income? (*Hint*: the maximum income must occur at one of the vertices of the graph.)
- Using the answer from Exercise 5, what will be your club's income if all the bags of mix are sold?