

2.5 Practice – Writing Systems of Inequalities

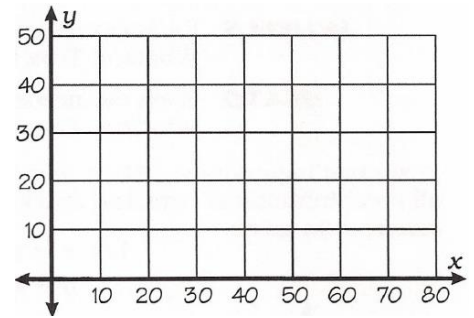
Write a system of inequalities for each situation. Graph the system and then identify solutions.

1. The owner of Jeff's Fish Market orders cod and salmon. He wants to buy at least 50 pounds of fish but cannot spend more than \$350. Cod is \$4 per pound and salmon is \$7 per pound.

Let x = pounds of cod & y = pounds of salmon.

System of inequalities:

	x	y	Total



Which of the following are solutions?

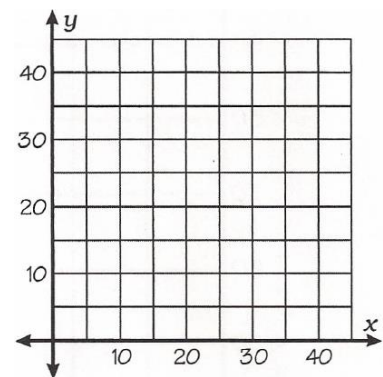
(30, 15) (50, 18) (30, 20) (60, 20) (30, 30)

2. Ali is designing a rectangular flower garden with a fence around it. She can use no more than 80 feet of fencing. She wants the width to be at least 5 feet and the length to be at least 20 feet.

Let x = the width & y = the length.

System of inequalities:

	x	y	Total



Which of the following are solutions?

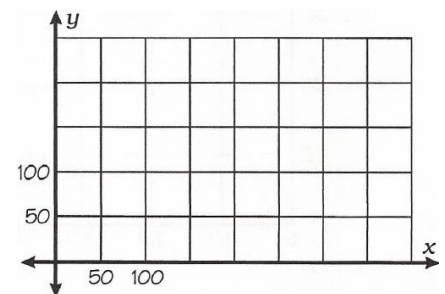
(10, 23) (7, 30) (18, 25) (10, 35) (20, 20)

3. Tickets for the Spring Fling cost \$3 per person or \$5 per couple. To cover expenses, at least \$750 worth of tickets must be sold. However, no more than 400 people can fit in the gym.

Let x = the \$3 tickets sold & y = the number of \$5 tickets sold.

System of inequalities:

	x	y	Total



Which of the following are solutions?

(50, 110) (150, 70) (280, 45) (300, 60) (0, 200)

Write a system of inequalities for the situation.

4. Willis has been sent to the grocery store to purchase bagels and muffins for the members of the track team. He can spend at most \$28. A package of bagels costs \$2.50 and contains 6 bagels. A package of muffins costs \$3.50 and contains 8 muffins. He needs to buy at least 12 bagels and 24 muffins.

Let x = the number of packages of bagels and y = the number of packages of muffins.

	x	y	Total
<i>Bagels only</i>			
<i>Muffins only</i>			

5. The community theater is selling tickets to its play. An adult ticket costs \$12 and a child ticket costs \$8. The theater wants to take in at least \$2720 from ticket sales and has only 275 seats.

Let x = the number of adult tickets and y = the number of child tickets.

	x	y	Total

6. An exam has two sections: a multiple-choice section and an essay. You can score a maximum of 100 points. To pass the test, you must get at least 65 points on the essay.

Let x = the score on the multiple-choice; y = the score on the essay.

	x	y	Total
<i>Essay only</i>			

7. You have at most 8 hours to spend at the mall and at the beach. You want to spend at least 2 hours at the mall and more than 4 hours at the beach.

Let x = the time spent at the mall; y = time spent at the beach.

	x	y	Total
<i>Mall only</i>			
<i>Beach only</i>			

8. You can earn \$10 per hour working as a manager at a grocery store. You are required to work at the grocery store at least 8 hours per week. You also teach music lessons for \$15 per hour. You need to earn at least \$120 each week but you do not want to work more than 20 hours.

Let x = the hours working at the grocery store; y = time spent giving music lessons

	x	y	Total
<i>Grocery only</i>			

9. You are fishing for surfperch and rockfish, which are species of bottomfish. Gaming law allows you to catch no more than 15 surfperch per day, no more than 10 rockfish per day, and at most 20 total bottomfish per day.

Let x = surfperch and y = rockfish.

	x	y	Total
<i>Surfperch only</i>			
<i>Rockfish only</i>			

10. You can spend at most \$21 on fruit. Blueberries cost \$4 per pound and strawberries cost \$3 per pound. You need at least 3 pounds of fruit to make muffins.

Let x = pounds of blueberries; y = pounds of strawberries.

	x	y	Total

11. Ami and Shae agree to split the driving on a road trip from Philadelphia to Denver. Ami drives at an average speed of 60 mph; while Shae drives at 55 mph. They want to drive at least 500 miles per day. They plan to spend no more than 10 hours driving each day.

Let x = hours Ami drives; y = hours Shae drives.

	x	y	Total

12. A delicatessen has 12 pounds of plain sausage and 10 pounds of spicy sausage. A pound of Bratwurst A contains $\frac{3}{4}$ pound of plain sausage and $\frac{1}{4}$ pound of spicy sausage. A pound of Bratwurst B contains $\frac{1}{2}$ pound of each sausage.

Let x = Bratwurst A; y = Bratwurst B

	x	y	Total