

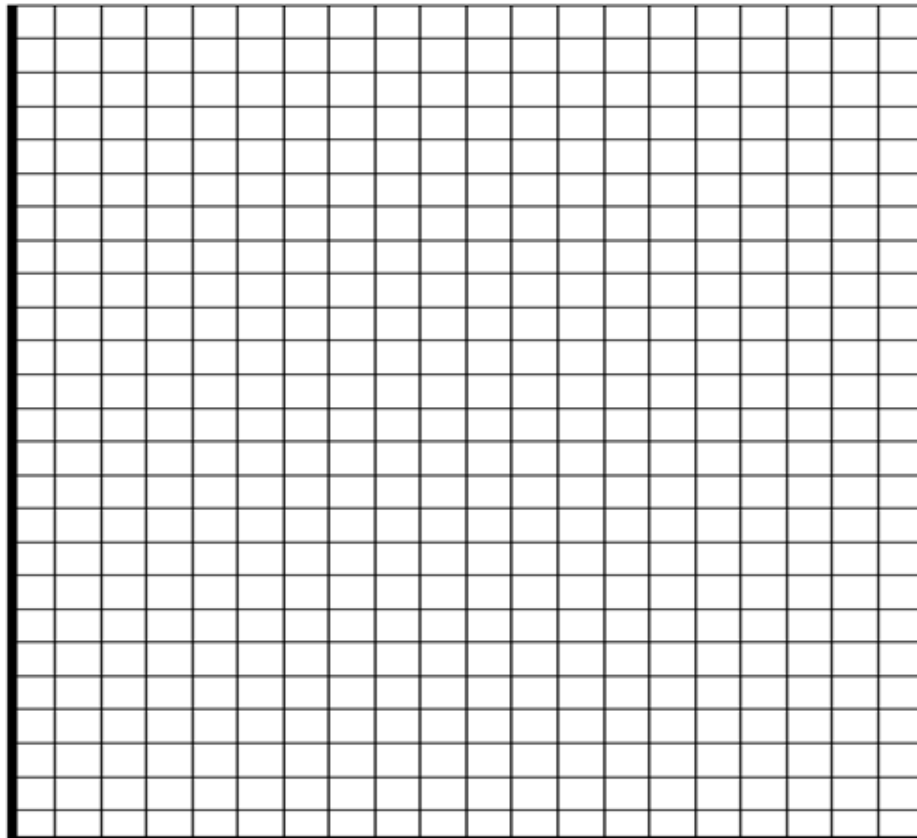
DO NOW: Explain in words the meaning of the following situation:

- a) The shirt that you want to buy at Abercrombie costs at least \$30. What does this mean?
- b) A movie usually lasts no more than 2 hours. What does this mean?

AIM: REAL WORLD APPLICATIONS INVOLVING SYSTEMS OF INEQUALITIES

1. Suppose you have two jobs, babysitting, which pays \$5 per hour, and bagging groceries, which pays \$6 per hour. You can work no more than 20 hours each week, but you need to earn at least \$90 per week. How many hours can you work at each job?

- a. Define the variables and write the systems of inequalities that represents this situation.
- b. Graph the inequalities and shade the solution set.
- c. What does the shaded region represent?



2. Sandi boards cats and dogs while their owners are away. Each week she can care for no more than 12 animals. For next week she already has reservations for 4 cats and 5 dogs, but she knows those numbers will probably increase.

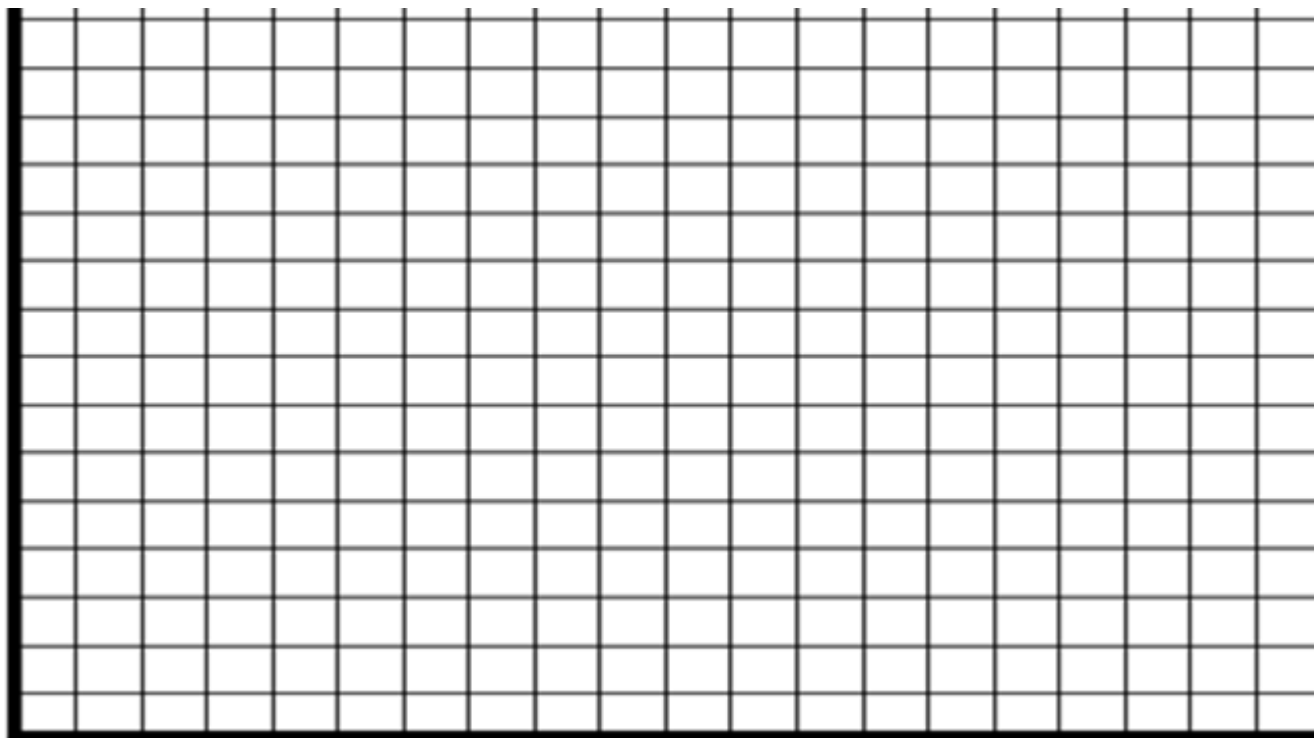
- a) Define the variables.
- b) Use the information in the problem to write 3 inequalities and draw a graph to show the possible number of cats and dogs that Sandi might board next week.

1-Sandi can care for no more than 12 animals:_____

2-She expects at least 4 cats:_____

3-She expects at least 5 dogs:_____

- c) Give a possible combination of cats and dogs that Sandi might board next week.



Represent the sentence as an algebraic inequality.

3) The number x is **more than** 50. 3)_____

4) The sum of $5x$ and $2x$ is **at least** 70. 4)_____

5) The **minimum value** of $2x + 1$ is 13. 5)_____

6) The product of $3x$ and $x + 1$ is **at most** 35. 6)_____

7) The **maximum value** of a number x is 3. 7)_____

Name: _____

Exit Ticket

Sarah is selling bracelets and earrings to make money for her summer vacation. The bracelets cost \$ 2 and earrings cost \$3. Sarah is confident that she will sell **at least** fifty bracelets. However, Sarah knows that she needs to make **at least** \$500.

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- b. Write the systems of inequalities that represents this situation.

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