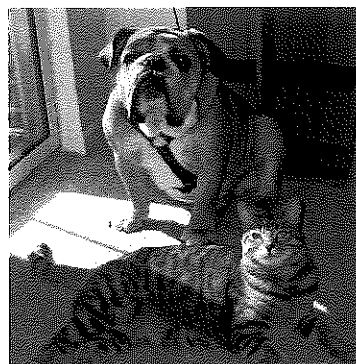


## 5.1 Pet Sitters

### *A Develop Understanding Task*



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The Martinez twins, Carlos and Clarita, are trying to find a way to make money during summer vacation. When they overhear their aunt complaining about how difficult it is to find someone to care for her pets while she will be away on a trip, Carlos and Clarita know they have found the perfect solution. Not only do they have a large, unused storage shed on their property where they can house animals, they also have a spacious fenced backyard where the pets can play.

Carlos and Clarita are making a list of some of the issues they need to consider as part of their business plan to care for cats and dogs while their owners are on vacation.

- *Space:* Cat pens will require  $6 \text{ ft}^2$  of space, while dog runs require  $24 \text{ ft}^2$ . Carlos and Clarita have up to  $360 \text{ ft}^2$  available in the storage shed for pens and runs, while still leaving enough room to move around the cages.
- *Start-up Costs:* Carlos and Clarita plan to invest much of the \$1280 they earned from their last business venture to purchase cat pens and dog runs. It will cost \$32 for each cat pen and \$80 for each dog run.

Of course, Carlos and Clarita want to make as much money as possible from their business, so they are trying to determine how many of each type of pet they should plan to accommodate. They plan to charge \$8 per day for boarding each cat and \$20 per day for each dog.

After surveying the community regarding the pet boarding needs, Carlos and Clarita are confident that they can keep all of their boarding spaces filled for the summer.

So the question is, how many of each type of pet should they prepare for? Their dad has suggested the same number of each, perhaps 12 cats and 12 dogs. Carlos thinks they should plan for more dogs, since they can charge more. Clarita thinks they should plan for more cats since they take less space and time, and therefore they can board more.

What do you think? What recommendations would you give to Carlos and Clarita, and what argument would you use to convince them that your recommendation is reasonable?

READY, SET, GO!

Name \_\_\_\_\_

Period \_\_\_\_\_

Date \_\_\_\_\_

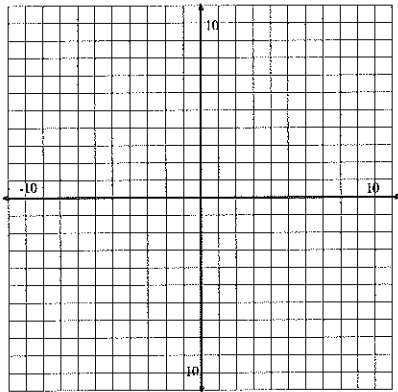
**READY**

Topic: Solving system of equations by graphing.

Substitute the given points into both equations to determine which ordered pair satisfies the system of linear equations. Graph both equations and label the point of intersection to verify the solution.

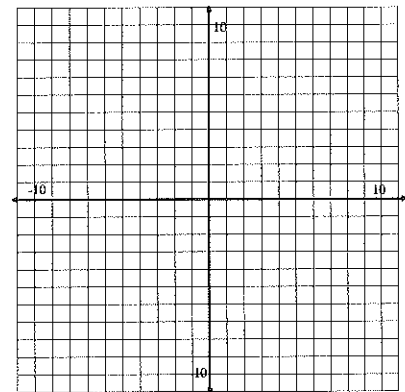
1.  $y = 3x - 2$  and  $y = x$

- a.  $(0, -2)$   
b.  $(2, 2)$   
c.  $(1, 1)$



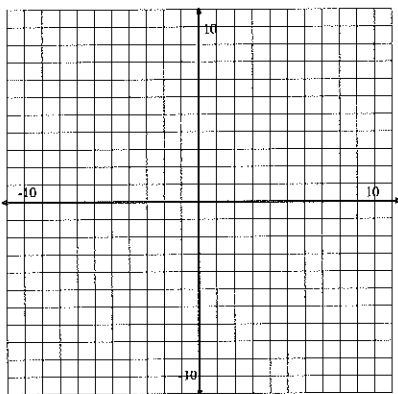
2.  $y = 2x + 3$  and  $y = x + 5$

- a.  $(2, 7)$   
b.  $(-7, 11)$   
c.  $(0, 5)$

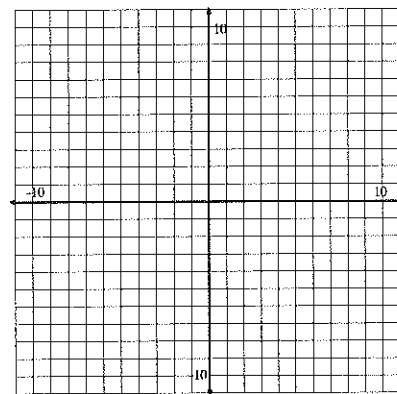


Solve the following systems by graphing. Check the solution by evaluating both equations at the point of intersection.

3.  $y = x + 3$  and  $y = -2x + 3$



4.  $y = 3x - 8$  and  $y = -x$

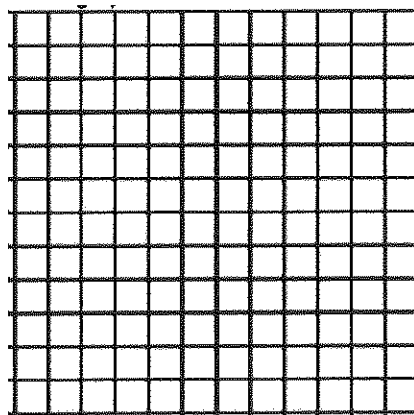


**SET**

Topic: Determining possible solutions to inequalities

5. A theater wants to take in at least \$2000 for the matinee. Children's tickets cost \$5 each and adult tickets cost \$10 each. The theater can seat up to 350 people. Find five combinations of children and adult tickets that will make the \$2000 goal.
  
6. The Utah Jazz scored 102 points in a recent game. The team scored some 3-point shots, 2-point shots, and many free throws worth 1-point each. Find five combinations of baskets that would add up to 102 points.
  
7. Use as many of the following shapes in any combination as you need to try to fill in as much of the 12 by 12 grid as you can. You may rotate or reflect a shape if it helps. Write your answer showing how many of each shape you used using the letters that identify shape.

**Example:** 3a, 5b, 10c, 2d, 6e

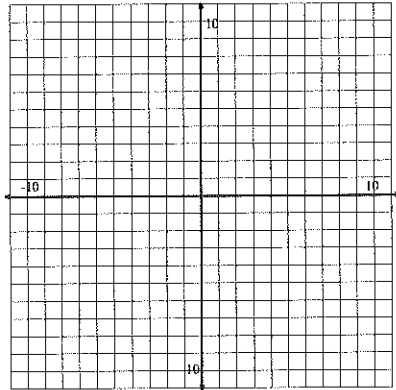


## GO

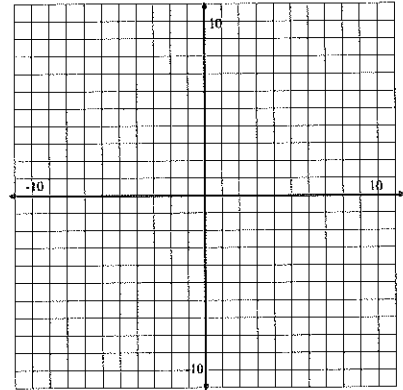
Topic: Graphing linear equations and determining if a given value is a solution, arithmetic sequences

Graph each equation below; then determine if the point (3,5) is a solution to the equation. Find two points other than (3,5) that are solutions to the equation. Show these points on the graph.

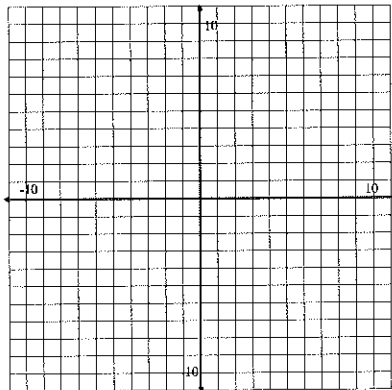
8.  $y = 2x - 1$



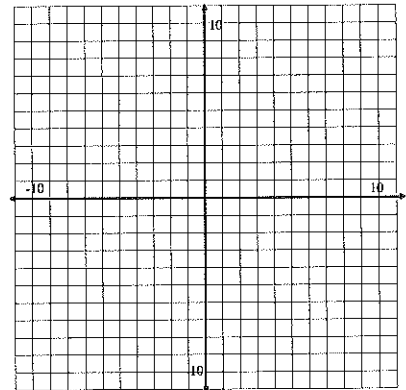
9.  $y = \frac{1}{3}x + 2$



10.  $y = -3x + 5$



11.  $y = \frac{-3}{5}x + 4$



The tables below represent **different** arithmetic sequences. Fill in the missing numbers. Then write the explicit equation for each.

12.

term (x)	1	2	3	4
value (y)	17			-7

Equation:

13.

term(x)	1	2	3	4	5	6	7	8	9	10	11	12	13
term(y)	17												-7

Equation:

14.

term (x)	1	2	3	4	5	6	7
value (y)	17						-7

Equation:

15. Each of the sequences above begins and ends with the same number. Would the graph of each sequence represent the same line? Justify your thinking.

16. If you graphed each of these sequences and made them continuous by connecting each point, where would they intersect?