Name:_____ Per:_____



# 5. 5 All For One, One For All

*A Solidify Understanding Task*

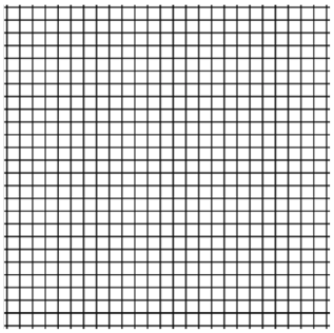
Carlos and Clarita have found a way to represent combinations of cats and dogs that satisfy each of their individual "Pet Sitter" constraints, but they realize that they need to find combinations that satisfy all of the constraints simultaneously. Why?

1. Begin by listing the **system of inequalities** you have written to represent the *start-up costs* and *space* "Pet Sitter" constraints.

2. Find at least 5 combinations of cats and dogs that would satisfy both of the constraints represented by this system of inequalities. How do you know these combinations work?

3. Find at least 5 combinations of cats and dogs that would satisfy one of the constraints, but not the other. For each combination, explain how you know it works for one of the inequalities, but not for the other?

4. Shade a region on the coordinate grid that would represent the **solution set to the system of inequalities.** Explain how you found the region to shade.

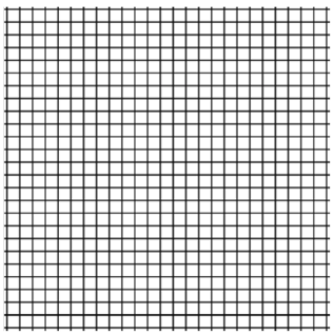


5. Rewrite your systems of inequalities to include the additional constraints for *feeding time* and *pampering time*.

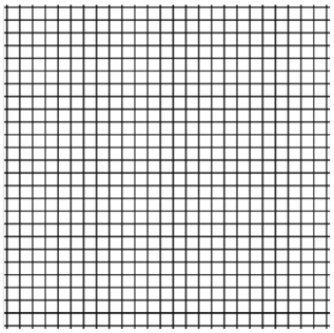
6. Find at least 5 combinations of cats and dogs that would satisfy all of the constraints represented by this new system of inequalities. How do you know these combinations work?

7. Find at least 5 combinations of cats and dogs that would satisfy some of the constraints, but not all of them. For each combination, explain how you know it works for some inequalities, but not for others?

8. Shade a region of the coordinate grid that would represent the solution set to the system of inequalities consisting of all 4 "Pet Sitter" constraints. Explain how you found the region to shade.



9. Shade a region in quadrant 1 of the coordinate grid that would represent all possible combinations of cats and dogs that satisfy the 4 "Pet Sitter" constraints. This set of points is referred to as the **feasible region** since Carlos and Clarita can feasibly board any of the combinations of cats and dogs represented by the points in this region without exceeding any of their constraints on time, money or space.



10. How is the feasible region shaded in #9 different from the solution set to the system of inequalities shaded in #8?

SECONDARY MATH I // MODULE 5
SYSTEMS – 5.5

**5.5**

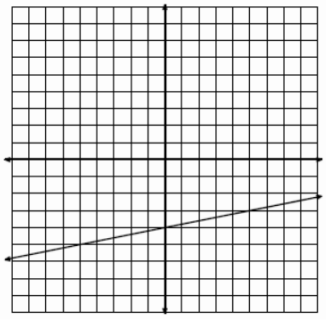
READY, SET, GO! **Name** **Period** **Date**

## *READY*

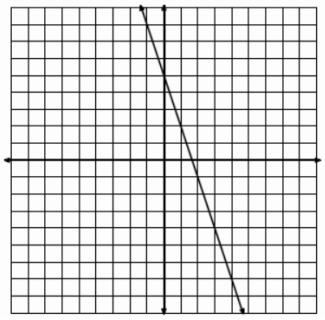
Topic: Graphing two variable inequalities.

**For each inequality and graph, pick a point and use it to determine which half-plane should be shaded; then shade the correct half-plane.**

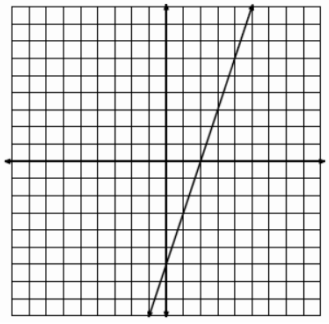
1. $y \leq \frac{1}{5}x - 4$



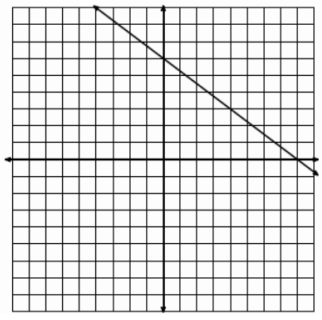
2. $y \geq -3x + 5$



3. $5x - 2y \leq 10$



4. $3x + 4y \geq 24$

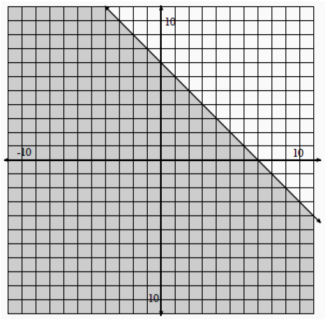


## *SET*

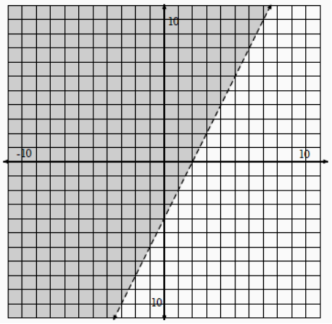
Topic: Writing two variable inequalities

**Use the graph to write the inequality that represents the shaded region.**

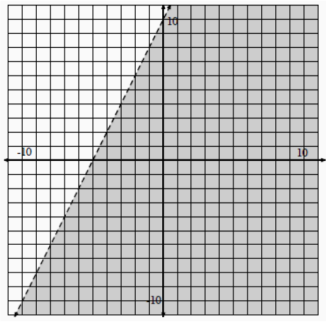
5.



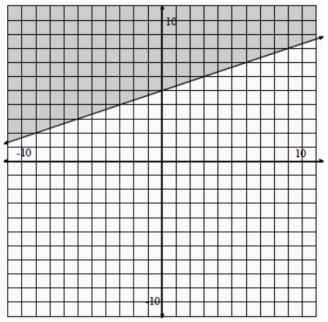

6.




7.




8.




## GO

Topic: Proportional relationships

**For each proportional relationship below, one representation is provided. Create the remaining representations and explain any connections you notice between representations.**

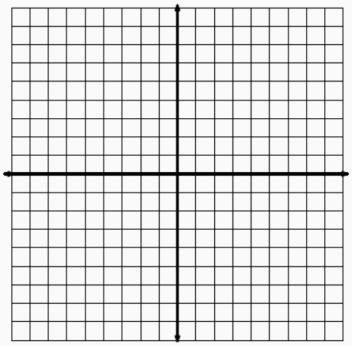
9. **Equation**:

**Table**

| Days | Cost |
|---|---|
| 1 | 8 |
| 2 | 16 |
| 3 | 24 |
| 4 | 32 |

**Create a context**

**Graph**



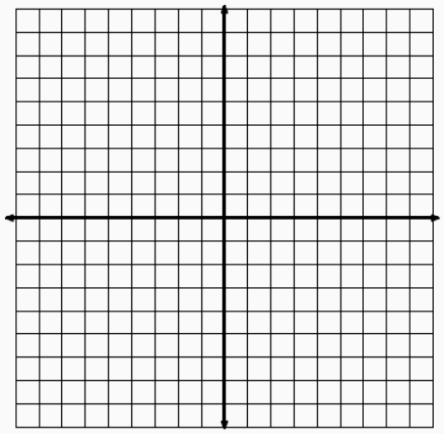
10. **Equation**:

**Table**

**Create a context**

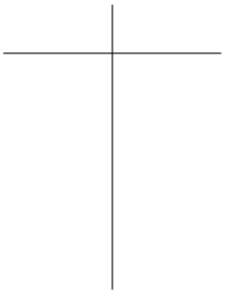
Claire earns $9 per week allowance.

**Graph**



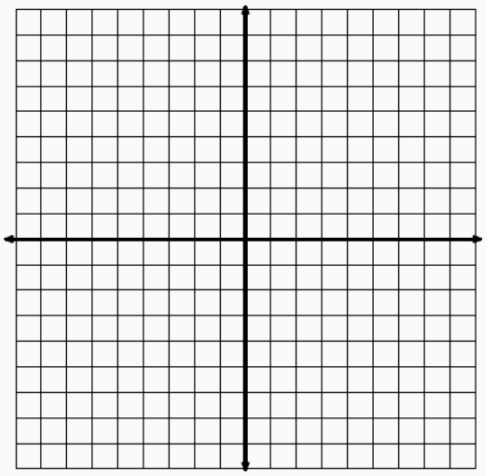
11. **Equation**: $y = 3x$

**Table**



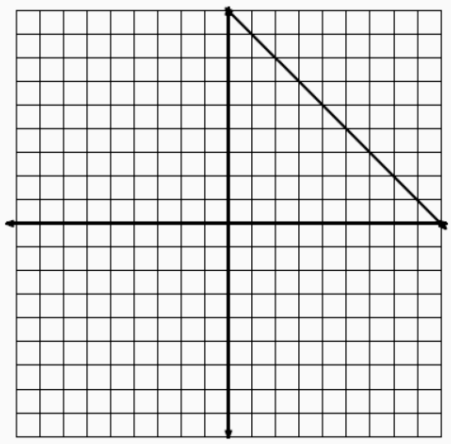
**Create a Context**

**Graph**



12. **Equation**:

**Graph**



**Table**

| Seconds | Sand |
|---|---|
| | |

**Create a Context**