

SPACE:

Carlos Equation

$$y = -\frac{1}{4}x + 15$$

$$\begin{aligned} & \frac{1}{4}x + y = 15 \quad (+) \\ & x + 4y = 60 \quad (-) \\ \hline & -3x = -300 \end{aligned}$$

Clarita's Equation

$$6x + 24y = 360$$

$$\begin{aligned} & 6x + 24y = 360 \quad (-6x) \\ \hline & 24y = 360 - 6x \\ & y = \frac{360}{24} - \frac{6x}{24} \\ & y = 15 - \frac{1}{4}x \\ & y = -\frac{1}{4}x + 15 \end{aligned}$$

Standard Form
 $Ax + By = C$

A, B, C = whole numbers
A positive

5.4 Pampering and Feeding Time

A Practice Understanding Task



Carlos and Clarita have been worried about space and start-up costs for their pet sitters, but they realize they also have a limit on the amount of time they have for taking care of the animals they board. To keep things fair, they have agreed on the following time constraints.

- Feeding Time:** Carlos and Clarita estimate that cats will require 6 minutes twice a day—morning and evening—to feed and clean their litter boxes, for a total of 12 minutes per day for each cat. Dogs will require 10 minutes twice a day to feed and walk for a total of 20 minutes per day for each dog. Carlos can spend up to 8 hours each day for the morning and evening feedings, but needs the middle of the day off for baseball practice and games.
- Pampering Time:** The twins plan to spend 16 minutes each day brushing and petting each cat, and 20 minutes each day bathing or playing with each dog. Clarita needs time off in the morning for piano class and evening for her art class, but she can spend up to 8 hours during the middle of the day to pamper and play with the pets.

Write inequalities for each of these additional time constraints. Shade the solution set for each constraint on separate coordinate grids.

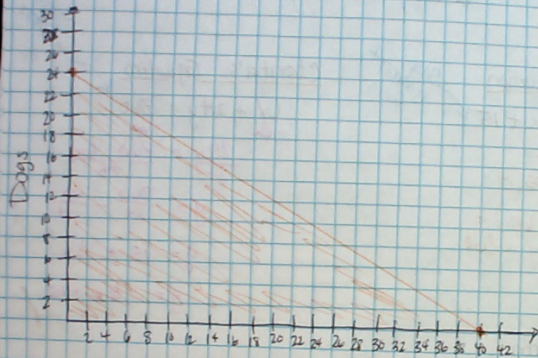
Feeding Time $P = 480 \text{ min}$

$$12C + 20D \leq 480 \text{ min}$$

Pampering Time

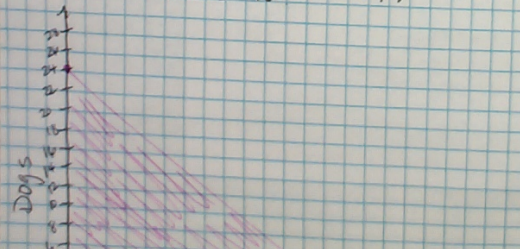
Feeding Time

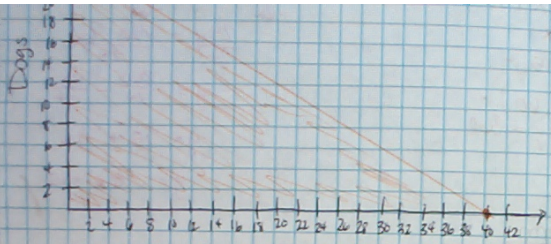
$$12C + 20D \leq 480 \text{ min}$$



Pampering Time

$$16C + 20D \leq 480$$





Cats

Pampering Time

$$16C + 20D \leq 480$$

Cats (3, 0)
Days (0, 24)

