

Content and Language Objective:

Students will be able to write multiple equations in standard form from a given scenario using inequalities

Warm Up: Write inequalities for...

1) Ricky spent at least \$150 at the mall today.

$$x \geq 150$$

2) To wrestle in the heavyweight class, a high school student can weigh no more than 245 pounds.

$$x \leq 245 \text{ lbs}$$

3) Grapes grow best between the temperatures of 55 and 80 degrees.

$$55 < x < 80$$

4) To win a Las Vegas bet at the AFC championship, the Patriots must beat the Ravens by at least 10 points.

$$x \geq 10$$

Graphing Inequalities

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

$>$ $<$ 

\geq \leq 

$>$ \geq shade up  or right 

$<$ \leq shade down  or left 

A restaurant has a maximum seating capacity of 70 people. What are different combinations of adults and children that could be seated in the restaurant?

a) Write an inequality to represent this situation.

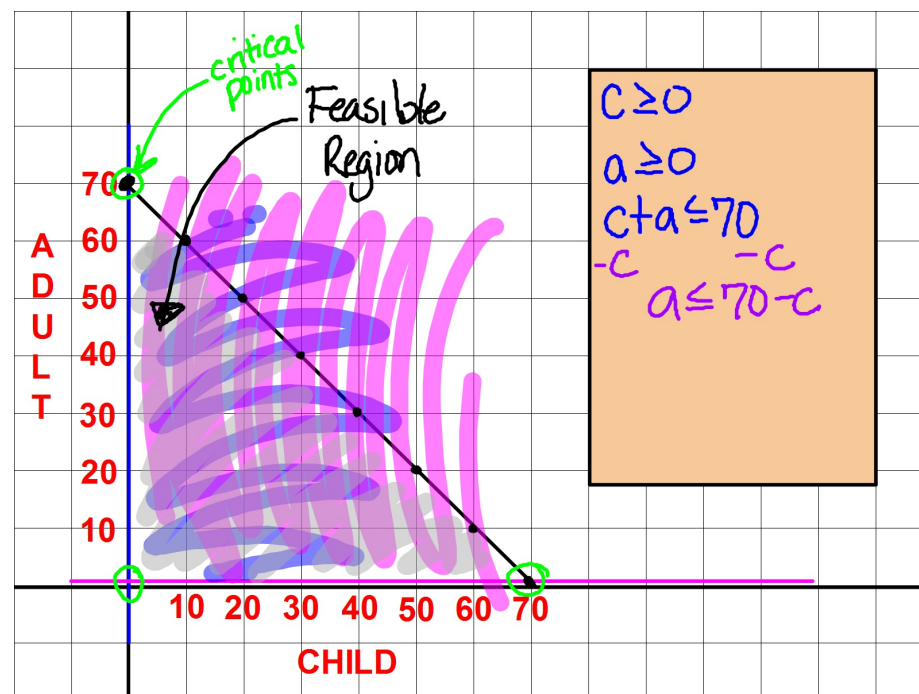
$$70 \geq c + a \quad a + c \leq 70$$

b) Think of other boundaries to the graph

$$c \geq 0 \quad a \geq 0$$

c) Graph this inequality with C on Horizontal Axis and A on the Vertical Axis.

d) On your graph, list 3 possible combinations of adults and children that are able to be seated at the restaurant.



So let's think about what would happen if we added in another constraint. How do you think that would affect our graph.

Write a short paragraph about what you think will happen.

Add in another constraint: To maximize profits, they try to book no more than 10 children per night.

Write an equation for this new constraint

$$C \leq 10$$

On average, they make \$10 profit per adult and \$3 profit per child.

