

Translating Inequalities

Goal:

- to represent the constraints/restrictions
of a situation with linear inequalities

The first step to solve an optimization problem is to write the constraints as inequalities.

Define variables + be specific

Ex:

a) There are at most 80 boys and girls at a party.

x : # of boys

y : # of girls

$$x + y \leq 80$$

b) The number of dogs is at least ten more than the number of cats

x : # of dogs

y : # of cats

$$x \geq y + 10$$

$$x - y \geq 10$$

c) The value of dimes and quarters is no more than \$6.00

x : # of dimes

y : # of quarters

$$10x + 25y \leq 600$$

value
(¢)

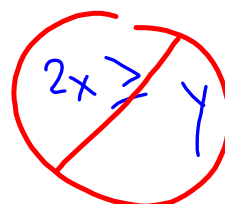
value
(¢)

The most difficult type of inequality are those like the following:

a) There are at least twice as many boys as girls.

x : # of boys
 y : # of girls

$$x \geq 2y$$



~~$2x \geq y$~~

b) There are at most four times as many cars as trucks.

x : # of cars
 y : # of trucks

$$x \leq 4y$$

c) There are no less than thirty fewer dogs than cats.

x : # of dogs
 y : # of cats

$$x \geq y - 30$$

p. 100 #6, 7

p. 110 #6