So far, we have looked at situations that
Can be represented by a system of ineqaulities

-- We have graphed the system in order to find combinations (within a region) that work for the restrictions

Example: A company manufactures two types of shoes – vans and jordans

Restrictions

-- Due to materials available, the company Can make at most 40 pairs of vans and 60 pairs of jordans per day

-- it costs $8 to make a pair of vans

-- it costs $12 to make a pair of jordans

-- the company has a quota of making at least 70 pairs of shoes per day

We create our variables:

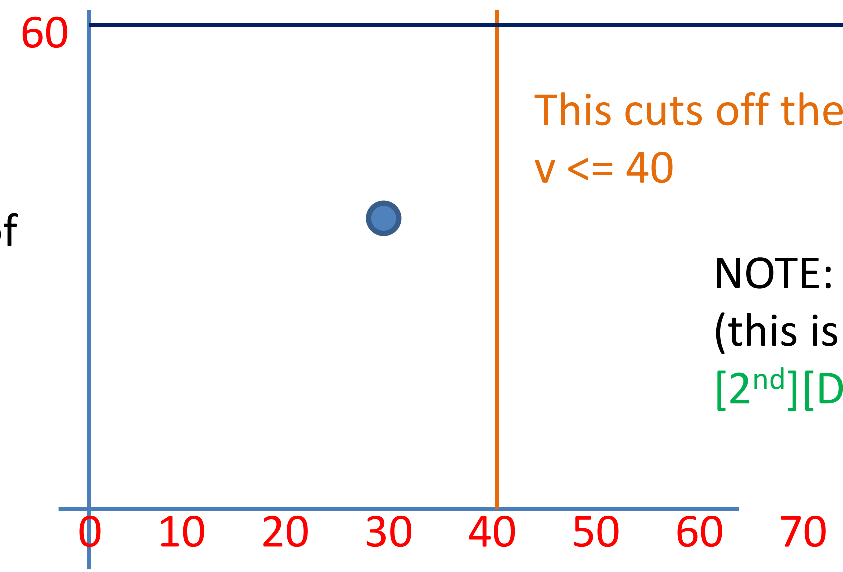
NOTE: The costs of making each is not important yet, we want to create a system for the manufacturing numbers

v - # of pairs of vans manufactured

j - # of pairs of jordans manufactured

NOTE: Use the [Y=] to graph the horizontal line

This cuts off the number of jordans
j <= 60



This cuts off the number of vans
v <= 40

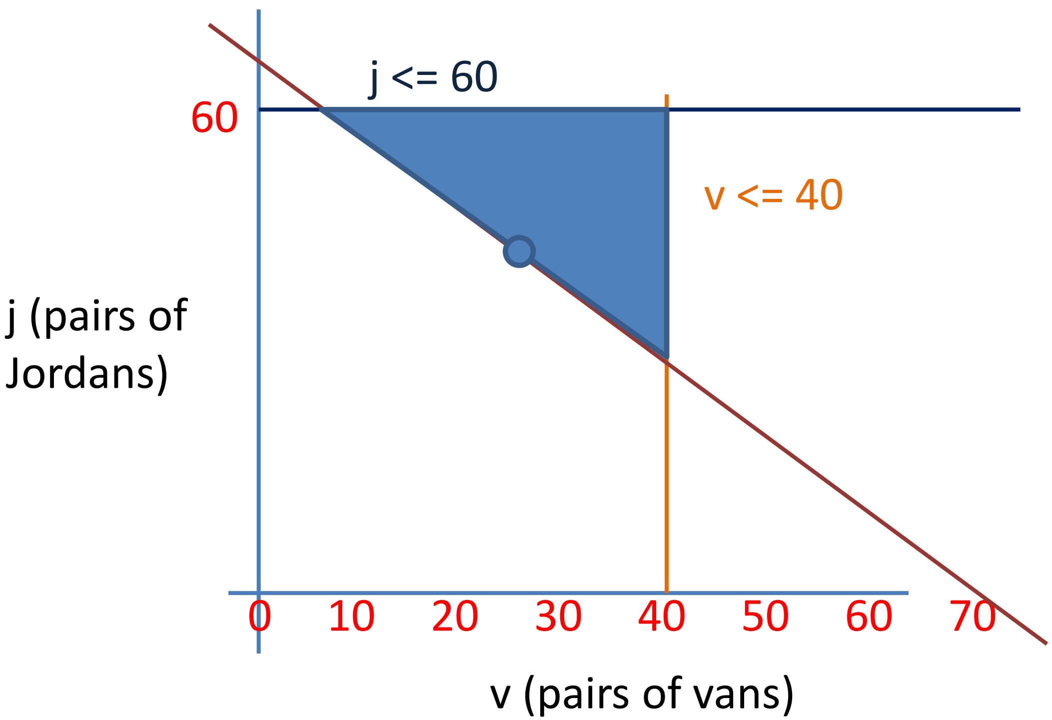
j (pairs of Jordans)

v (pairs of vans)

NOTE: To graph a vertical line
(this is NOT a function, just a drawing)
[2nd][DRAW][4:Vertical] Value

We create our variables:

Now, we can look at the other restriction on the QUOTA



-- the company has a quota of making at least 70 pairs of shoes per day

Pairs manufactured >= Quota

j + v >= 70

j >= -v + 70

The shaded region is our solution set; as we move the point around, it represents different types of solutions

Most companies would like to maximize profits; we will do this by minimizing costs

-- it costs $8 to make a pair of vans

-- it costs $12 to make a pair of jordans

This adds a new goal for us (it is not a restriction because it does not prevent a solution from working… the cost just changes when you move the solution around)

We call this the OBJECTIVE function (goal)

$$C = 8v + 12j$$

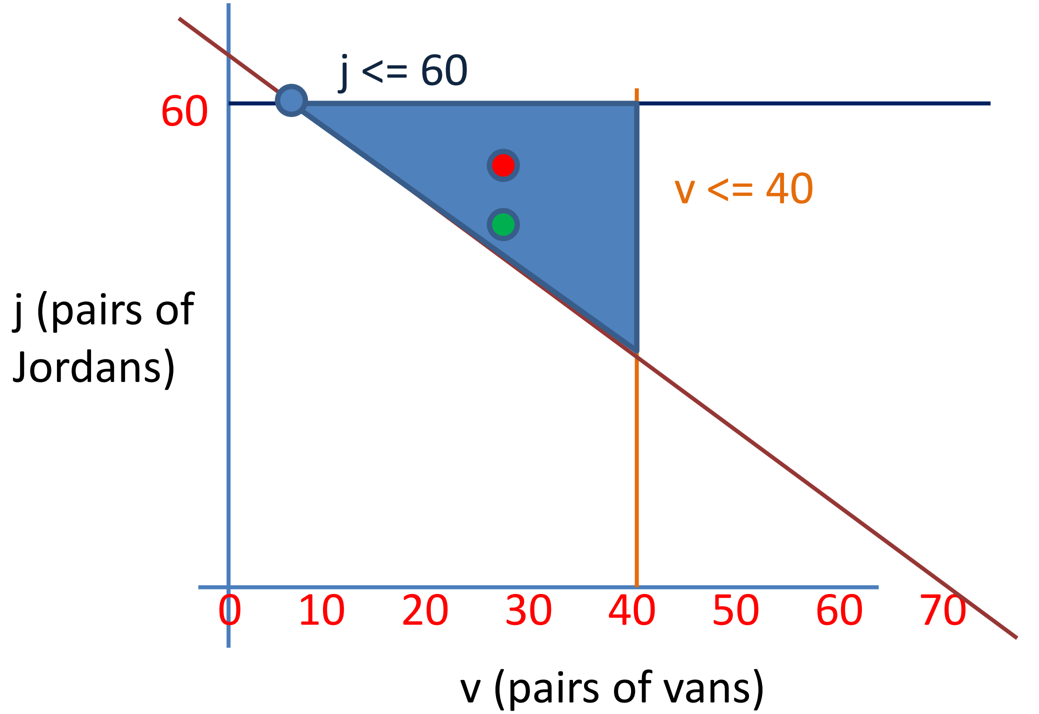
We pick a solution:

We choose the top left corner:
We use the [INTERSECT] to find

v = 10
j = 60

We calculate the COST of this solution

C = 8(10) + 12(60)
C = 80 + 720
C = $800



We choose a second solution at

V = 29
J = 53

C = 8(29) + 12(53)
C = 232 + 636
C = $868

We choose a third solution by moving
It down

v = 29
j = 40

C = 8(29) + 12(40)
C = 232 + 480
C = $712