

11-14-05

①

#2 Objective Max Revenue. ✓

Constraints: Pollution  $\leq 30$  units ✓

Market Requirements ✓

 $x \geq 0, y \geq 0$ A = # shifts  
plant 1B = # shifts  
plant 2Revenue =  $A \cdot 5000 + B \cdot 3000$  ✓

{	Plant I	\$5000 rev/shift
	II	\$3000

{	Plant I	3 units/shift
	II	4

 $A \cdot 3 + B \cdot 4 \leq 30$  ✓

Market	Produced	$\geq$	Demand	
Regular	$2A + 6B$	$\geq$	12	✓
Super	$A + B$	$\geq$	3	✓
Diesel	$6A + 3B$	$\geq$	18	✓

#3 What is the profit from running 1 shift of plant 1?

$$\begin{aligned}
 \$500 &= \text{Revenue} - \text{Cost. (=Profit)} \\
 &= \$5000 - \$4500
 \end{aligned}$$

Plant 2? Profit = 3000 - 2200 = 800

Max Profit depend on # shifts each plant

$$= \underline{500} A + \underline{800} B$$

Same Constraints As Before!

#4 New Constraint = Crude Oil

How much used:  $15 A + 12 B \leq 120$

Used

Available

Objective Min Cost =  $\underline{4500} A + \underline{2200} B$



The top of the graph on the next page. Put p 3 on top of p 2 to see the entire graph!

Res	
A	B
0	2
6	0

Super	
A	B
0	3
3	0

Diesel	
A	B
0	6
2	0

Pollution	
A	B
0	7.5
10	0

③

Crude	
A	B
0	10
$8 = \frac{120}{15}$	0

