

## STEPS OF LINEAR PROGRAMING

1. Identify the Objective Function: **Maximize or Minimize?**
2. Define Objective Function (Write the Obj. Funct. Eq.)
3. Define the Constraints (Write the Constraints Eqs.)
4. Define the Feasible Region
5. Obtain the vertices of the feasible region
6. Substitute vertices in the Objective Function
7. Select the data where the value is Maximized/Minimized

## EXAMPLE I

- Objective: **Maximize the Profits**
- Irrigation project
  - 1800 acre-feet of water per year

	Crop A	Crop B
Water requirement (Acre feet/acre)	3	2
Profit (\$/acre)	300	500
Max area (acres)	400	600

- Decision variables
  - $x_A$  = acres of Crop A to plant?
  - $x_B$  = acres of Crop B to plant?

1,800 acre feet = 2,220,267 m<sup>3</sup>  
 400 acre = 1,618,742 m<sup>2</sup>

# FEASIBLE REGION

Maximize  $Z = 300x_A + 500x_B$

Subject to

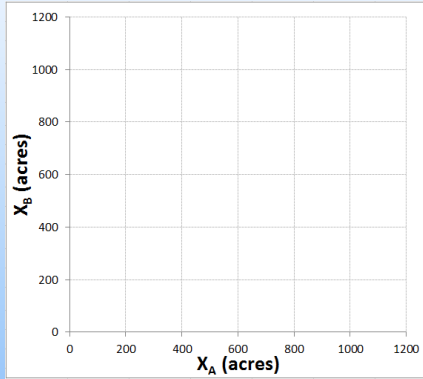
$x_A \leq 400$

$x_A \geq 0$

$x_B \leq 600$

$x_B \geq 0$

$3x_A + 2x_B \leq 1800$



# EXAMPLE I

Maximize  $Z = 300x_A + 500x_B$

Subject to

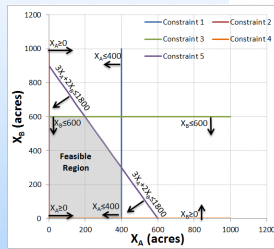
$x_A \leq 400$

$x_A \geq 0$

$x_B \leq 600$

$x_B \geq 0$

$3x_A + 2x_B \leq 1800$



Point	$x_A$	$x_B$	$Z=300x_A+500x_B$
a	0	0	
b	0	600	
c	200	600	
d	400	300	
e	400	0	