



**Microeconomics
HM207**

**Basic Algebra & Graphical
Analysis for Microeconomics**

Tutorial 1



Basic Algebra Review

Operation (Transposition)	Example (find y)	Solution
Addition	$y + 2 = x + 2$	$y = x$
Subtraction	$y - 4 = x + 4$	$y = x + 8$
Multiplication	$y/x = -3$	$Y = -3x$
Division	$-7y = x$	$Y = -x/7$

Equations in 2 Unknowns:

(1) $x + y = 2$

(2) $-x + y = 4$

1. Solve one equation for x or y

(1) $x = 2 - y$

2. Substitute in the second equation

(2) $-x + y = 4$

$$-(2-y) + y = 4$$

$$-2 + y + y = 4$$

$$y = (4+2)/2$$

$$y = 3$$

3. Substitute result in the equation

(1) $x + y = 2$

$$x + 3 = 2$$

$$x = 2 - 3$$

$$x = -1$$

4. Check Solution:

(1) $x + y = 2$

$$-1 + 3 = 2$$

$$2 = 2$$



Exercise

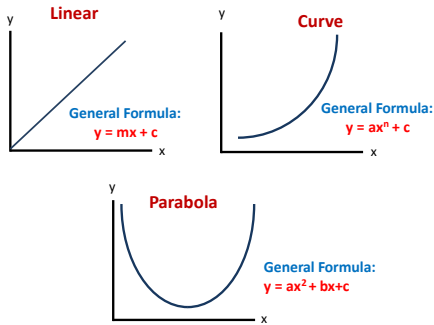
- Solve the following equations:

(1) $6x + 2y = 2$

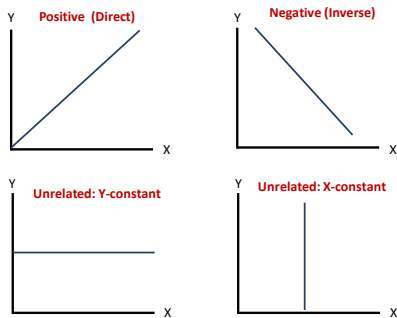
(2) $x + y = 4$



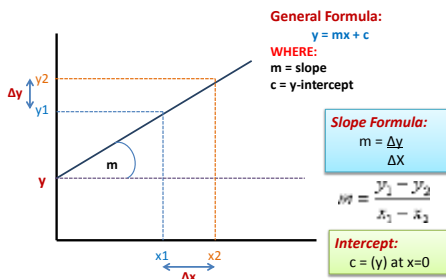
Common Graphical Functions Used in Economics



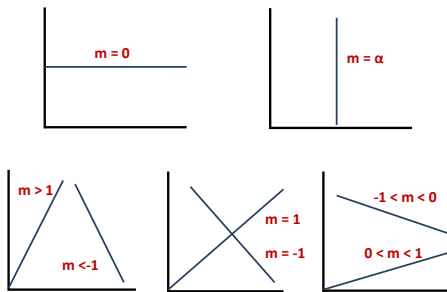
Linear Relationships



Understanding Linear Graphs

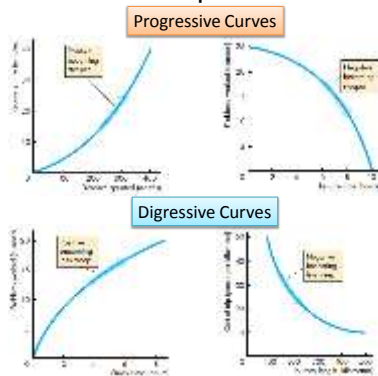


Slope Characteristics



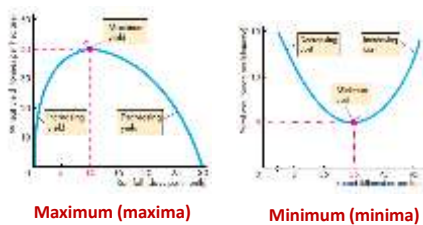
S.. 7

Curve Relationships



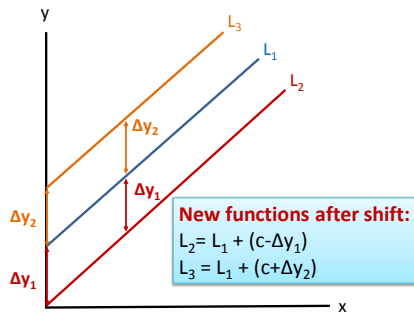
S.. 8

Relationships with maximum and minimum

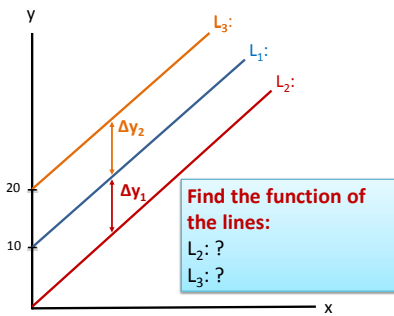


S.. 9

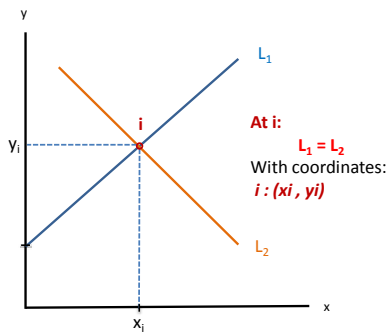
Linear Shift



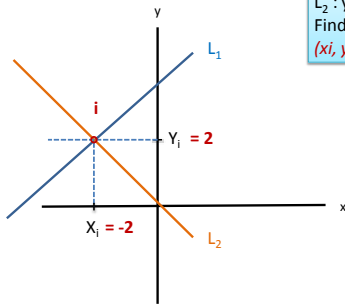
Linear Shift



Point of intersection



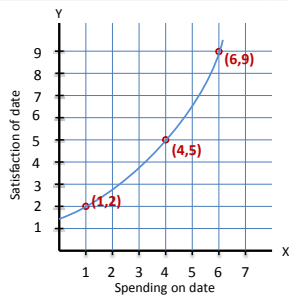
Point of intersection



S...13

Creating a Graph

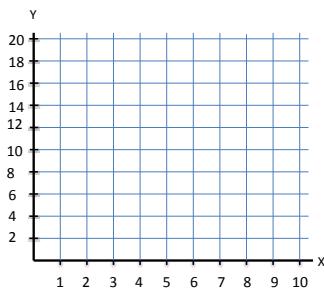
Spending on a date (x) in \$hundreds	1	4	6
Satisfaction of date (Y) – from scale of 1-10	2	5	9



S...14

Exercise: Creating a Graph

x	0	2	4	6	8	10
y	20	16	12	8	4	0



S...15

1. Graph the function.
2. What is the slope?
3. What is the y-intercept?
4. Define the function represented by the line?
5. What is the effect of adding 5 units to each y on the slope and the line function?