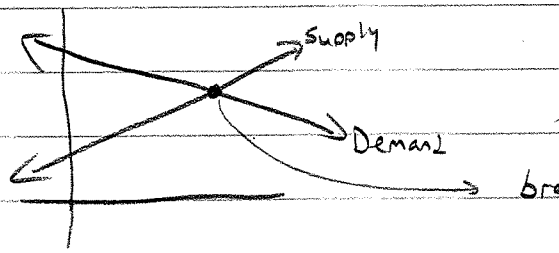
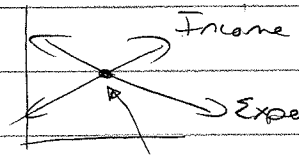
p158: 41, 42, 44, 47, 49

3.1 Solve Linear Systems by Graphing

* You want to make money? This is the chapter.

Economics - Supply & demand for a product





break-even point (where the 2 lines intersect)

The <u>Solution</u> of two lines is their point of intersection.

<u>Example</u> - use grid for

Solve the system by graphing & check algebraically.

① $y = -4x + 8$

② $2x - 3y = 18$

Do ① by SI form; ② by x & y-intercepts.

$y = -4x + 8$

$m = -\frac{4}{1}$, $b = 8$

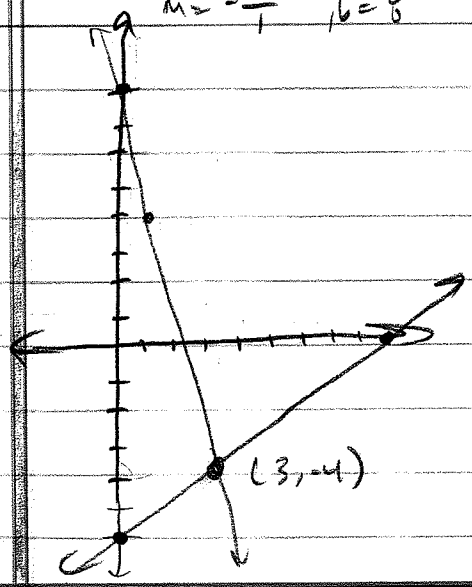
$2x - 3y = 18$

$(x, 0)$ $(0, y)$

$2x = 18$ $-3y = 18$

$x = 9$ $y = -6$

$(9, 0)$ $(0, -6)$



Check for (3, -4) - plug in for x & y

$y = -4x + 8$ $2x - 3y = 18$

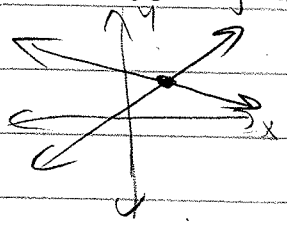
$-4 = -4(3) + 8$ $2(3) - 3(-4) = 18$

$-4 = -12 + 8$ $6 + 12 = 18$

$-4 = -4$ $18 = 18$ Yup!

3 possibilities for graphing 2 lines

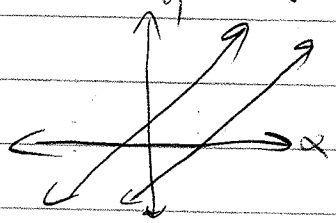
Intersecting Lines



1 solution

Consistent, independent

Parallel Lines

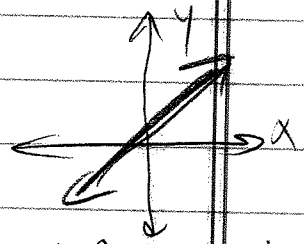


No solutions

Inconsistent

$y = 3x - 4$ } Same slope
$y = 3x + 3$ } 11 lines

Same lines



Infinite solutions

Consistent, Dependent

$2x + y = 4$ } Same lin
$4x + 2y = 8$ }

Consistent - has at least 1 solution.

Inconsistent - has no solution.

Independent - has exactly 1 solution

Dependent - has infinite solutions

Homework

p156: 1, 2, 6-11, 18, 28, 35, 36, 38