

MATH2 (814012) – SPRING 2006

HOMEWORK OF UNIT 4

SYSTEMS OF LINEAR EQUATIONS

Question (1): Solve the following systems by graphing and check your answer, then determine whether the equations are independent, dependent or inconsistent.

$$(b) \quad \begin{aligned} 4x + 6y &= 12 \\ 2x + 3y &= -6 \end{aligned}$$

$$(a) \quad \begin{aligned} 2x - 3y &= 2 \\ x + 2y &= 8 \end{aligned}$$

$$(d) \quad \begin{aligned} 2x + 3y &= 12 \\ 2(x - 3y) &= -6 \end{aligned}$$

$$(c) \quad \begin{aligned} 2x - 3y &= -6 \\ -x + \frac{3}{2}y &= 3 \end{aligned}$$

$$(e) \quad \begin{aligned} x &= 1 \\ y &= 4 \end{aligned}$$

Question (2): Solve each system by substitution method. Determine whether the equations are independent, dependent, or inconsistent:

$$(b) \quad \begin{aligned} 2x - y &= 3 \\ 2y &= 4x - 6 \end{aligned}$$

$$(a) \quad \begin{aligned} x + y &= 7 \\ 2x + 3y &= 18 \end{aligned}$$

$$(d) \quad \begin{aligned} x + 2y - 8 &= 0 \\ 2x + 4y + 4 &= 0 \end{aligned}$$

$$(c) \quad \begin{aligned} 2x - 3y &= 6 \\ 3y - 2x &= 3 \end{aligned}$$

$$\begin{aligned} y &= 3x - 4 \\ y &= 3x + 4 \end{aligned} \quad (e)$$

Question (3): Solve each system by the addition (Elimination) method:

$$(b) \quad \begin{aligned} 2x - y &= -5 \\ 9x - 3y &= 5 \end{aligned}$$

$$(a) \quad \begin{aligned} 7x - 4y &= -3 \\ x + 2y &= 3 \end{aligned}$$

$$(d) \quad \begin{aligned} x - y &= 3 \\ -6x + 6y &= 17 \end{aligned}$$

$$(c) \quad \begin{aligned} 3x + 4y &= -5 \\ 5x + 6y &= -7 \end{aligned}$$

$$(f) \quad \begin{aligned} \frac{2}{3}x + \frac{5}{6}y &= \frac{1}{4} \\ \frac{1}{5}x - \frac{1}{10}y &= -\frac{1}{10} \end{aligned}$$

$$(e) \quad \begin{aligned} \frac{1}{4}x + \frac{1}{3}y &= 5 \\ x - y &= 6 \end{aligned}$$