## MEMORIAL UNIVERSITY OF NEWFOUNDLAND DEPARTMENT OF MATHEMATICS AND STATISTICS

- 1. Find all solutions for the following problems by writing the solution in parametric form
  - (a) 20x y = 10(b) 10x + 3y + 5z = 6(c) ax + by + cz + dw = e, where a, b, c, d(c) ax = hy + cz + dw = e, where a, b, c, d(c) ax = hy + cz + dw = e, where a, b, c, d
- 2. Solve each of the systems algebraically and geometrically (or argue that it does not have a solution). Write the augmented matrix corresponding to each of the systems.
  - (a) x + y + 4 = 0<br/>9x 3y = 0(c) 2x + y = 3<br/>3x y = 2(b) 2x + y = 3<br/>3x y = 2<br/>20x 30y = -10(d) 2x + y = 3<br/>2y + 4x = 6
- 3. Write a linear system corresponding to the given augmented matrix.
  - (a)  $\begin{bmatrix} 4 & 12 & | & 16 \\ 3 & -9 & | & -1 \end{bmatrix}$  (b)  $\begin{bmatrix} -1 & 2 & -3 & 4 & | & 5 \\ 0 & -10 & 0 & 1 & | & 100 \end{bmatrix}$
- 4. Margo needs 42mg of vitamin A and 65mg of vitamin D per day. She has two supplements: the first contains 10% vitamin A and 25% vitamin D; the second contains 20% vitamin A and 25% vitamin D. How much of each supplement should she eat each day?
- 5. Compose your own word problem that requires solution of a system of linear equations. Solve the problem.