Past Exam Questions
Section 9.2

1. If (a,b,c) is the solution of the system of equations $\begin{cases} x - 3y + z = 8 \\ 2x - 5y - 3z = 2 \\ x + 4y + z = 1 \end{cases}$ then $a + b + c =$

    a. 4
    b. −6
    c. 6
    d. −1
    e. −4

2. If (a,b,c) is the solution of the system of equations $\begin{cases} x + 3y - z = 1 \\ 2x + 5y - 3z = 1 \\ x + 4y + z = 0 \end{cases}$ then $a + b + c =$

    a. −9
    b. −2
    c. −7
    d. 0
    e. 12

3. The system of linear equation $\begin{cases} x + 2y = 1 \\ x + 3y + z = 4 \\ 2y + 2z = 6 \end{cases}$ has

    a. Infinitely many solutions.
    b. Three solutions only.
    c. No solution.
    d. A unique solution.
    e. Two solutions only.

4. Consider the **augmented matrix** of the **linear system** $\begin{bmatrix} 1 & -2 & -2 & -1 \\ 1 & 1 & 1 & 2 \\ 1 & 2 & 2 & 1 \end{bmatrix}$

Which one of the following statement is **TRUE**?
    a. The system is inconsistent, independent, and has no solution.
    b. The system is consistent, independent and has one solution.
    c. The system is consistent, dependent, and has infinitely many solutions.
    d. The system has the solution set $\left\{\left(2,1,\frac{1}{2}\right)\right\}$
    e. The system has the solution set $\{(5, -1, -1)\}$

With complements of Dr. Ali Al-Karkhy

5. If the system $\begin{cases} x - 2y + z = 1 \\ y + 3z = m^2 \\ y + kz = 4 \end{cases}$ has a unique solution, then

    a. $k \neq 3$
    b. $k \neq 3$ *and* $m \neq \pm 2$
    c. $k = 3$ *and* $m \neq \pm 2$
    d. $k = 1$
    e. $k \neq 3$ *and* $m = \pm 2$

6. Which one of the following statement is **TRUE** about the linear system of equations which has the

    augmented matrix $\begin{bmatrix} 1 & 2 & -1 & 1 \\ 2 & 4 & -2 & 0 \\ 1 & 2 & (c^2 - 1) & c + 1 \end{bmatrix}$

    a. The system is inconsistent for all values of c.
    b. The system is consistent if $c = 0$, with infinitely many solutions.
    c. The system is consistent for all $c \neq 0$, with exactly one solution.
    d. The system can be made consistent for a suitable choice of c.
    e. The system is consistent for $c > 0$.

7. The value of the constant k for which the system of equations $\begin{cases} x + kz = 1 \\ y + z = 2 \\ 2x + y = 5 \end{cases}$ has no solution, is equal

    to:
    a. $k = -\dfrac{1}{2}$
    b. $k = -\dfrac{3}{2}$
    c. $k = -\dfrac{5}{2}$
    d. $k = \dfrac{3}{2}$
    e. $k = -1$