EMCF Quiz 9 Due March 25 at 11:59 PM

1. The solution set of the system
$$
\begin{aligned}
x + 2y - 3z + 4w &= 2 \\
2x + 5y - 2z + w &= 1 \\
5x + 12y - 7z + 7w &= 4
\end{aligned}
$$
is:

(a) no solutions

(b) $x = -8 + 11a$, $y = 2 - 4a$, $z = a$, $w = a$, a any real number

(c) $x = 8 + 11a$, $y = -3 - 4a$, $z = a$, $w = 0$, a any real number

(d) $x = 8 + a$, $y = -3 + 4a$, $z = 1$, $w = a$, a any real number

(e) None of the above.

2. The solution set of the system
$$
\begin{aligned}
2x + 8y + 11z &= 7 \\
x + 4y + 3z &= 1 \\
x + 6y + 7z &= 3
\end{aligned}
$$
is:

(a) $x = 1$, $y = -1$, $z = 2$

(b) no solution

(c) $x = 2 - a$, $y = -3 - 2a$, $z = a$, a any real number

(d) $x = 2$, $y = -1$, $z = 1$

(e) None of the above.

3. The solution set of the system
$$
\begin{aligned}
3x + 6y - 3z &= 6 \\
-2x - 4y - 3z &= -1 \\
3x + 6y - 2z &= 10
\end{aligned}
$$
is:

(a) $x = 7 - a$, $y = 2 + a$, $z = a$, a any real number.

(b) $x = 3 - 2a$, $y = 4a - 1$, $z = a$, a any real number.

(c) no solution

(d) $x = 4$, $y = -2$, $z = -1$.

(e) None of the above.

4. The solution set of the system
$$2y - 3z + w = 0$$
$$x + y - z + 4w = 0$$
$$-2x - 2y + 2z - 8w = 0$$
is:

   (a) no solutions

   (b) $x = -\frac{1}{2}a - \frac{7}{2}b, \ y = \frac{3}{2}a - \frac{1}{2}b, \ z = a, \ w = b, \quad a, b$ any real numbers

   (c) $x = \frac{1}{2}a + \frac{7}{2}b, \ y = -\frac{3}{2}a + \frac{1}{2}b, \ z = a, \ w = b, \quad a, b$ any real numbers

   (d) $x = -\frac{1}{2}a - \frac{7}{2}b, \ y = \frac{3}{2}a - \frac{1}{2}b, \ z = a, \ w = 0, \quad a$ any real number

   (e) None of the above.

5. The solution set of the system
$$x + y - 2z + 3w = 4$$
$$2x + 3y + 3z - w = 3$$
$$5x + 7y + 4z + w = 5$$
is:

   (a) no solutions

   (b) $x = 9 + 9a - 10b, \ y = -5 - 7a + 7w, \ z = a, \ w = b, \quad a, \ b$ any real numbers

   (c) $x = 8 + 11a, \ y = -3 - 4a, \ z = a, \ w = 0, \quad a$ any real number

   (d) $x = 9 + 9a, \ y = -5 - 7a, \ z = a, \ w = 0, \quad a$ any real numbers

   (e) None of the above.

Use the system of equations
$$x - 2y = 1$$
$$x - y + kz = -2$$
$$ky + 4z = 6$$
for problems 6 and 7.

6. The value(s) of k such that the system has a unique solution is (are):

   (a) $k \neq \pm 3$

   (b) $k \neq \pm 2$

   (c) $k \neq -2$

   (d) $k = 2, \ -2$

   (e) None of the above.

7. The value(s) of k such that the system has a infinitely many solutions is (are):

   (a) $k = -2$

   (b) $k = 2$

   (c) $k \neq 2$

   (d) $k \neq -2$

   (e) None of the above.