Name:  

Instructions. Do all problems, and show appropriate work. Do not use a calculator.

1. Solve the following triangular system of equations

\[
\begin{align*}
2x + 3y - 2z &= -7 \\
y + 2z &= 14 \\
z &= 5 \\
\end{align*}
\]

\[
\begin{align*}
z &= 5 \\
y + 10 &= 14 \\
\Rightarrow \quad y &= 4 \\
x + 12 - 10 = -7 &= x + 2 = -7 \\
-9 &= x = -9 \\
\end{align*}
\]

Solution: \((-9, 4, 5)\)

2. Solve the system of equations

\[
\begin{align*}
-3x + 7y &= 14 \\
2x - y &= -13 \\
\end{align*}
\]

\[
\begin{align*}
-3x + 7y &= 14 \\
2x - y &= -13 \\
\Rightarrow \\
-x + 6y &= 1 \\
\end{align*}
\]

Solution: \((-7, -1)\)

3. Find the system of equations that is needed to find \(a, b\) and \(c\) in the equation of the form \(y = ax^2 + bx + c\) whose graph passes through the points \((2, 3), (-2, 7)\) and \((1, -2)\). Do not solve the system of equations you found.

\[
\begin{align*}
4a + 2b + c &= 3 \\
4a - 2b + c &= 7 \\
a + b + c &= -2 \\
\end{align*}
\]