MATH 125 College Algebra Name_____

Solving Systems of Three Equations with Three Variables

EXAMPLE A: Solve the systems of equations below

$$\left\{\begin{array}{l} x + 2y + z = -5 \\ x + 3y + z = -8 \\ 2x + y + 3z = 1 \end{array}\right\}$$

EXAMPLE B:

$$\left\{\begin{array}{l} -x + 5y + 2z = 6 \\ 3x + 2y - z = -12 \\ 4x - y - 3z = -22 \end{array}\right\}$$

EXAMPLE C:

$$\left\{\begin{array}{l} 6x - y + 5z = -2 \\ -4x + y - 3z = -12 \\ 2x - 7y = 66 \end{array}\right\}$$

Example D:

Find the standard form for the equation of a parabola, $y = Ax^2 + Bx + C$, that passes through the points $(4, -13)$, $(3, -5)$, *and* $(-2, -25)$.

Example E:

A couple had their advisor invest a total of $48,000 a year ago. The advisor spread the money over three different accounts that earned 6.2%, 7.5% and 9%. The total interest earned was $3708. The account that earned 7.5% had the same amount invested as the other two accounts together. How much was invested in each account?

*Let* $x$ = *the amount invested in the* 6.2% *account.*

*Let* $y$ = *the amount invested in the* 7.5% *account.*

*Let* $z$ = *the amount invested in the* 9% *account.*