Together you and I have scored 154 points. You have scored 5 less than twice the number of points that I have scored. Write a system of equations and solve to find the number of points each of us have scored.

y = your pts

I = I pts

$y + I = 154$

$y = 2I - 5$

You could solve by any method but Substitution looks like a good choice.

$2I - 5 + I = 154$

$3I = 159$

$I = 53$

$y = 2(53) - 5$

$y = 101$

your pts 101

my pts 53

Without actually solving determine if each system of equations has 1, None, or Many solutions.

$y = 6x - 9$

$30x + 5y = 15$

$m = 6$

ONE different slope

$m = \frac{-30}{5} = -6$

$y = 7x + 20$

$y = 7$

$m = 7$

$m = 0$

ONE different slope

$y = -4x + 18$

$12x + 3y = 54$

$m = -4$

$b = 18$

$m = \frac{-12}{3} = -4$

$b = \frac{54}{3} = 18$

MANY same slope and same y-intercept.

Solve this system of equations using any method.

$5.2x + 3.8y = 10.2$ → $b = \frac{10.2}{3.8} = 2.68421$

$7.8x + 5.7y = 15.3$ → $b = \frac{15.3}{5.7} = 2.68421$

Using matrices leads to the following error message:

ERROR: SINGULAR MATRIX

This error message means that either these are the same line (Many Solutions) or they are parallel (No Sol). Since both cases indicate the lines have the same slope all that is needed is the y-intercept.

Since the y-intercepts are the same these are actually the same line: MANY SOLUTIONS

Solve this system of equations.

$9x + 7y - z = 26$

$y + 4z = 11$

$8x = 2y + 25 + 3z$

$8x - 2y - 3z = 25$

$(4, -1, 3)$

$A = \begin{bmatrix} 9 & 7 & -1 \\ 0 & 1 & 4 \\ 8 & -2 & -3 \end{bmatrix}$

$B = \begin{bmatrix} 26 \\ 11 \\ 25 \end{bmatrix}$

Now do $[A]^{-1}[B]$ to find the solution.

Solve this system of equations using substitution.

$11x - 10y = -82$ → $y = \frac{-82-11x}{-10}$

$4x + 13y = 70$ → $y = 8.2 + 1.1x$

$4x + 13(8.2 + 1.1x) = 70$

$4x + 106.6 + 14.3x = 70$

$18.3x + 106.6 = 70$

$-106.6 \quad -106.6$

$18.3x = -36.6$

$x = -2$

$y = 8.2 + 1.1(-2)$

$y = 6$

Solution:

(-2,6)

factor each completely.

$12m^3 - 28m^2 - 80m$

$4m(m-4)(3m+5)$

$4m(3m^2 - 7m - 20)$

-60

$-12 \quad 5$

-7

	m	-4
$3m$	$3m^2$	$-12m$
$+5$	$5m$	-20