Name: _____ Date: _____

PCH: Practice Using Matrices to Solve Linear Systems Ms. Loughran

Solve each of the following using matrices.

1. $x+2y-z=1$
   $2x-y+3z=4$
   $5x+5z=9$

infinitely many $\left(\frac{9-5z}{5}, \frac{1+z-\frac{9-5z}{5}}{2}, z\right)$ or $\left(x, \frac{1-x+\frac{9-5x}{5}}{2}, \frac{9-5x}{5}\right)$ or $\left(x, \frac{7}{5}-x, \frac{9}{5}-x\right)$ or $\left(\frac{9}{5}-z, z-\frac{2}{5}, z\right)$ or $\left(\frac{7}{5}-y, y, y+\frac{2}{5}\right)$

2. $3x-2y+z-1=0$
   $x-y-z-2=0$
   $6x-4y+2z-3=0$

no solution

3. $x+y+z=4$
   $x-2y-z=1$
   $2x-y-2z=-1$

$(2,-1,3)$

4. $x+y+z=6$
   $2x-y+3z=9$
   $-x+2y+2z=9$

$(1,2,3)$

5. $2x-y-3z=-1$
   $2x-y+z=-9$
   $x+2y-4z=17$

$(-1,5,-2)$

6. $2x-3y+z=5$
   $x+3y+8z=22$
   $3x-y+2z=12$

$(3,1,2)$

7. $3x-2y+7z=13$
   $x+8y-6z=-47$
   $7x-9y-9z=-3$

$(-3,-4,2)$

8. $2x+y+z=-2$
   $2x-y+3z=6$
   $3x-5y+4z=7$

$(-3,0,4)$

9. $2x+3y+z=17$
   $x-3y+2z=-8$
   $5x-2y+3z=5$

$(2,4,1)$

10. $-x+2y+3z=11$
    $2x-3y=-6$
    $3x-3y+3z=3$

$(3,4,2)$