Review #9.1-2

Name Answerkey
period #____

Solve each system

#1) $3(x-y=2)$
$2x+3y=9$

$3x-3y=6$
$2x+3y=9$

$5x=15$
$x=3$

$\frac{3}{3}y=\frac{2}{3}-3$
$-y=-1$
$y=1$

$(3,1)$

#2) $x+2y=7$
$2(5x-y=2)$

$x+2y=7$
$10x-2y=4$

$11x=11$
$x=1$

$1+2y=7$
$2y=6$
$y=3$

$(1,3)$

#3) $x^2+y=9$
$x-y=-3$

$x^2+x=6$
$x^2+x-6=0$

$(-3,0)$
$(2,5)$

3×-2
1

$(x+3)(x-2)=0$

$x=-3$ $x=2$
$y=0$
$-3 \quad -y=3$ $\quad -2 \quad -y=-3$
$+3 \quad \quad -3$ $\quad +2 \quad \quad +2$
$-y=0$ $\quad -y=-1$
$y=0$ $\quad y=1$

#4) $5(10x+4y=12)$
$-2(9x+10y=10)$

$190x+120y=360$
$-180x-120y=-360$

$0=0$

infinitely many

#5) $x-2y+z=7$

$-y+3z=9$

$2z=6$ → $\boxed{z=3}$

$-y+3(3)=9$

$-y+9=9$

$-y=0$

$\boxed{y=0}$

$x-2(0)+3=7$

$x+3=7$

$\boxed{x=4}$

$\boxed{(4,0,3)}$

#6) $2x-y+6z=5$

$y+4z=0$

$-2z=1$ → $\boxed{z=-\frac{1}{2}}$

$y+4(-\frac{1}{2})=0$

$y-2=0$

$\boxed{y=2}$

$\boxed{(5,2,-\frac{1}{2})}$

$2x-2+6(-\frac{1}{2})=5$

$2x-2-3=5$

$2x=10$

$x=5$

#7) $2x+4y-z=2$

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

$3x-y+z=1$

$\boxed{(0,1,2)}$

$2x+4y-z=2$

$3x-y+z=1$

$5x+3y=3$

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

$(3x-y+z=1)$

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

$9x-3y+3z=3$

$10x-y=-1$

$3(10x-y=-1)$

$5x+3y=3$

$30x-3y=-3$

$5x+3y=3$

$35x=0$

$\boxed{x=0}$

$10-y=-1$

$\boxed{y=1}$

$0+2-3z=-4$

$-2 \quad -2$

$-3z=-6$

$\boxed{z=2}$

#8) $x+y+6z=3$

$x+y+3z=3$

$x+2y+4z=7$

$x+y+6z=3$

$-(x+y+3z=3)$

$x+y+6z=3$

$-x-y-3z=-3$

$3z=0$

$\boxed{z=0}$

$x+y=3$

$-x+y=3$

$0=0$

$\boxed{(-1,4,0)}$

State the dimension of the matrix.

13. $\begin{bmatrix} -1 & 0 & -3 \\ 2 & 8 & 4 \end{bmatrix}$ 2X3

14. $\begin{bmatrix} 10 \\ -4 \\ 12 \end{bmatrix}$ 3X1

15. $\begin{bmatrix} -16 & 8 \end{bmatrix}$ 1X2

Find the solution ~~using Gaussian elimination or Gauss-Jordan elimination.~~

16. $x - 2y + z = 1$

$y + 2z = 5$

$x + y + 3z = 8$

$x - 2y + z = 1$

$-x + y + 3z = 0$

$-3y - 2z = -7$

$y + 2z = 5$

$-3y - 2z = -7$

$-2y = -2$

$y = 1$

$y + 2z = 5$

$1 + 2z = 5$

$-1 \quad -1$

$\frac{2z}{2} = \frac{4}{2}$

$z = 2$

$x + y + 3z = 8$

$x + 1 + 3(2) = 8$

$x + 1 + 6 = 8$

$x + 7 = 8$

$-7 \quad -7$

$x = 1$

$(1, 1, 2)$