SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) Solve the matrix equation: $\begin{bmatrix} x & y+2 \\ x+y & 4 \end{bmatrix} = \begin{bmatrix} x & 1 \\ 0 & 4 \end{bmatrix}$

1) _____

2) Solve the matrix equation: $\begin{bmatrix} x & y-1 \\ 5 & 2x \end{bmatrix} = \begin{bmatrix} 2y & 4 \\ 5 & 2x \end{bmatrix}$

2) _____

3)

   Perform the indicated operations and simplify your answer: $\begin{bmatrix} 3 & -1 \\ 4 & 2 \\ 6 & -8 \end{bmatrix} + 2\begin{bmatrix} 4 & -1 \\ 0 & 5 \\ -4 & 3 \end{bmatrix}$

3) _____

4) Perform the indicated operations and simplify your answer: $3\begin{bmatrix} 0 & 0 \\ -1 & 2 \end{bmatrix} - 4\begin{bmatrix} 1 & 9 \\ 0 & -3 \end{bmatrix}$

4) _____

5) If $\mathbf{A} = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 4 & 5 \end{bmatrix}$; $\mathbf{B} = \begin{bmatrix} 2 & -1 & -2 \\ 1 & -3 & -2 \end{bmatrix}$, then find $(\mathbf{A}+\mathbf{B})^T$.

5) _____

6) Find x, y, z, u, t, v such that $\begin{bmatrix} x & y & z \\ u & t & v \end{bmatrix} + 2\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix} = \begin{bmatrix} 8 & 3 & 5 \\ 9 & 8 & 14 \end{bmatrix}$

6) _____

7)

   Perform the indicated operation and simplify your answer: $\begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \end{bmatrix}\begin{bmatrix} 1 & 0 \\ 5 & 1 \\ -2 & 3 \end{bmatrix}$

7) _____

8) Perform the indicated operation and simplify your answer: $\begin{bmatrix} 2 \\ 4 \end{bmatrix}\begin{bmatrix} 3 & 1 & 0 \end{bmatrix}$

8) _____

9) Let $\mathbf{A} = \begin{bmatrix} 1 & 1 \\ 2 & -1 \end{bmatrix}$; $\mathbf{B} = \begin{bmatrix} 3 & -5 \\ -9 & 2 \end{bmatrix}$; $\mathbf{C} = \begin{bmatrix} -2 & 2 \\ 4 & -1 \end{bmatrix}$. Find $\mathbf{A}[\mathbf{B}+2\mathbf{C}]$

9) _____

10) The prices (in dollars per case) for 3 types of pens are represented by the price vector: $\mathbf{P} = \begin{bmatrix} 99 & 79 & 109 \end{bmatrix}$. An office supply store orders cases of these pens in the quantities given by the column vector: $\mathbf{Q} = \begin{bmatrix} 5 \\ 3 \\ 6 \end{bmatrix}$. Find the total cost (in dollars) of the purchase.

10) _____