

Matrix Multiplication Worksheet

Name _____

Show all work for full credit.

Period _____ Date _____

Find the product. If the product is not defined, state the reason.

1) $[3 \quad -1] \begin{bmatrix} 5 \\ 7 \end{bmatrix}$

2) $\begin{bmatrix} -1 & 0 \\ 5 & 4 \end{bmatrix} [4 \quad -6]$

3) $\begin{bmatrix} 9 & -3 \\ 0 & 2 \end{bmatrix} \begin{bmatrix} 0 & 1 \\ 4 & -2 \end{bmatrix}$

4) $\begin{bmatrix} 5 & 2 \\ 0 & -4 \\ 1 & 6 \end{bmatrix} \begin{bmatrix} 3 & 7 \\ -2 & 0 \end{bmatrix}$

5) $\begin{bmatrix} 1 & 3 & 0 \\ 2 & 12 & -4 \end{bmatrix} \begin{bmatrix} 9 & 1 \\ 4 & -3 \\ -2 & 4 \end{bmatrix}$

Solve for the variables.

6) $\begin{bmatrix} -2 & 1 & 2 \\ 3 & 2 & 4 \\ 0 & -2 & 4 \end{bmatrix} \begin{bmatrix} 1 \\ x \\ 3 \end{bmatrix} = \begin{bmatrix} 6 \\ 19 \\ y \end{bmatrix}$

7) $\begin{bmatrix} 4 & 1 & 3 \\ -2 & x & 1 \end{bmatrix} \begin{bmatrix} 9 & -2 \\ 2 & 1 \\ -1 & 1 \end{bmatrix} = \begin{bmatrix} y & -4 \\ -13 & 8 \end{bmatrix}$

Write an inventory matrix and a cost per item matrix. The use matrix multiplication to write a total cost matrix.

8) A softball team needs to buy 12 bats at \$21 each, 45 balls at \$4 each, and 15 uniforms at \$30 each.

9) A teacher is buying supplies for two art classes. For class 1, the teacher buys 24 tubes of paint, 12 brushes, and 17 canvasses. For class 2, the teacher buys 20 tubes of paint, 14 brushes, and 15 canvasses. Each tube of paint costs \$3.35, each brush costs \$1.75, and each canvas costs \$4.50.