

6.4H More Matrices on Steroids

Name: _____ Per: _____

SHOW YOUR WORK FOR FULL CREDIT. NO WORK, NO CREDIT. NO WORK IN PEN.

Write each of the following systems as an **augmented matrix and matrix equation**. (**DO NOT SOLVE**).

$$1. \begin{cases} -2x = 3 \\ -y + 3x = 5 \end{cases}$$

a. Matrix Equation:

b. Augmented Matrix:

$$2. \begin{cases} 5x + 3y = 3 + -4y \\ -\frac{1}{2}y + \frac{1}{4}x = 3x - \frac{101}{100} \end{cases}$$

a. Matrix Equation:

b. Augmented Matrix:

3. Write a linear system (two equations) that is **dependent** (both equations in the system represent the same line) but uses different numbers.

4. Use your equation from #3 and show what happens when you try to row reduce the 2x3 matrix.

5. If you take any matrix [A] and you multiply it by its multiplicative inverse, what will it equal?

6. Given the system $\begin{cases} 4x + 5y = 7 \\ -2x + 6y = 22 \end{cases}$

a. Rewrite the system as an augmented matrix and solve using row echelon reduction.

b. Rewrite the system as a matrix equation and solve using inverse matrices.

Solve the following using row echelon reduction **OR** inverse matrices.

7. $\begin{bmatrix} -8 & -10 & 24 \\ 6 & 5 & 2 \end{bmatrix}$

8. $\begin{bmatrix} -4 & -11 & 36 \\ 10 & 10 & -20 \end{bmatrix}$

For each of the situations below, **write and solve the system using matrices! SYW & CHECK ANSWERS.**

9. Carlos purchased 6 dog leashes and 6 cat brushes for \$45.00 for Clarita to use while pampering the pets. Later in the summer he purchased 3 additional dog leashes and 2 cat brushes for \$19.00.
10. One week he tried out a cheaper brand of cat and dog food. On Monday he purchased 3 small bags of cat food and 5 small bags of dog food for \$22.75. On Wednesday he buys 2 more small bags of cat food and 3 more small bags of dog food, which cost him \$14.25.
11. One week Carlos bought 2 packages of dog bones and 4 packages of cat treats for \$18.50. Because the cats didn't like the cat treats, Carlos returned 3 unopened packages of cat treats and bought 2 more packages of dog bones. After being refunded for the cat treats, Carlos only had to pay \$1.00 for his purchase.

EC. Rachel and two friends buy supplies at the bookstore. Rachel buys a notebook, three packages of pencils and two markers for \$7.50. Zack buys two notebooks, six packages of pencils and five markers for \$15.50. Jonah buys a notebook, two packages of pencils, and two markers for \$6.25 Use matrices to show how much does each of these items cost?