

**5RH: Matrix Operations Review**

Name: \_\_\_\_\_ Per: \_\_\_\_\_

Given the following matrices, perform the following operations (if possible). **If not possible, explain why.**

$$A = \begin{bmatrix} 3 & -5 \\ 12 & 8 \end{bmatrix}, \quad B = \begin{bmatrix} 9 & -3 \\ -10 & 2 \end{bmatrix}, \quad C = \begin{bmatrix} 7 & -1 & 12 \\ 0 & 6 & 7 \end{bmatrix}, \quad D = \begin{bmatrix} -4 & 13 & 2 \\ -9 & 5 & 1 \end{bmatrix}$$

1.  $A + B =$

6.  $-\frac{1}{2}C =$

11.  $CB =$

15.  $2(AB) =$

2.  $B + A =$

7.  $4D =$

12.  $CD =$

16.  $3C * 2B =$

3.  $A + C =$

8.  $AB =$

13.  $AD =$

4.  $D - C =$

17.  $3DC =$

9.  $BA =$

14.  $(2A)B =$

5.  $\frac{1}{4}A =$

10.  $BC =$

18. Rearrange matrix D so that you can multiply CD. Then multiply them.

19. Find the missing matrix:  $\begin{bmatrix} 2 & 6 \\ 7 & -4 \end{bmatrix} + \begin{bmatrix} \quad & \quad \\ \quad & \quad \end{bmatrix} = \begin{bmatrix} 12 & 14 \\ -3 & -5 \end{bmatrix}$

20. Find the missing numbers:  $\begin{bmatrix} 2 & 6 & 3 \\ 4 & 1 & \end{bmatrix} \begin{bmatrix} 5 & 6 \\ 3 & \\ 1 & 4 \end{bmatrix} = \begin{bmatrix} 55 & \\ 29 & 35 \end{bmatrix}$

### Organizing data into a matrix

21. At a refreshment stand, cups of frozen yogurt are available in three sizes: small for \$0.50, medium for \$0.75, and large for \$1.25. On Saturday, 65 small cups, 120 medium cups, and 45 large cups were sold. On Sunday, 80 large cups, 150 medium cups, and 95 small cups were sold. Set your information into matrices and label them.

22. Use matrices to show you how much money was made on Saturday and also on Sunday.

23. The following table shows the average grades for the following students in each category. Find the % average grade for each category and set the data into a matrix.

	Homework	Quizzes	Unit Test's	Final	Participation
Uhura	22/25	4/5	0.85	22/26	100/100
LaFawnda	25/25	3/5	0.90	24/26	100/100
Scarlett	18/25	5/5	0.88	18/26	90/100

24. If the final was worth 15%, Unit Test's are worth 30%, HW is worth 30%, Quizzes are worth 15%, and Participation is worth 10%, multiply your matrices to determine the final percentage grade for each girl.

**Solve for x:**

25.  $\begin{bmatrix} \sqrt[3]{8} & 3 \\ 3x + 7 & 5x - 4 \end{bmatrix} = \begin{bmatrix} 2 & \sqrt{9} \\ 6x + 13 & 7x \end{bmatrix}$

**Solve for x:**

26.  $\begin{bmatrix} 5 & 3 & 1 \\ x & 3 & 0 \end{bmatrix} \begin{bmatrix} 2 & 0 \\ 4 & 2 \\ 5 & 8 \end{bmatrix} = \begin{bmatrix} 27 & 14 \\ 20 & 6 \end{bmatrix}$