Selected Answers

Name:_____ Period:_____

Score: _____/_____ _____%

HW 9-1 & 9-2 HONORS: Intro to Matrices & Matrix Operations

State the dimension of each of the following matrices.

1. $\begin{bmatrix} 6 & -1 & 5 \\ -2 & 3 & -4 \end{bmatrix}$ 2x3

2. $\begin{bmatrix} 7 \\ 8 \\ 9 \\ 10 \end{bmatrix}$

3. $\begin{bmatrix} 16 & 8 \\ 10 & 5 \\ 0 & 0 \end{bmatrix}$ 3x2

4. $\begin{bmatrix} 17 & -2 & 8 & -9 & 6 \\ 5 & 11 & 20 & -1 & 4 \end{bmatrix}$

5. $\begin{bmatrix} 16 & 8 \\ 10 & 5 \\ 0 & 0 \end{bmatrix}$ 3x2

6. $\begin{bmatrix} 2 & -9 \end{bmatrix}$

Solve for each variable.

7. $\begin{bmatrix} 2x & 3 & 3z \end{bmatrix} = \begin{bmatrix} 5 & 3y & 9 \end{bmatrix}$

$x = 5/2$
$y = 1$
$z = 3$

8. $\begin{bmatrix} 4x & 3y \end{bmatrix} = \begin{bmatrix} 12 & -1 \end{bmatrix}$

9. $\begin{bmatrix} 4x \\ 5 \end{bmatrix} = \begin{bmatrix} 15+x \\ 2y-1 \end{bmatrix}$

$x = 5$
$y = 3$

10. $\begin{bmatrix} 4x-3 & 3y \\ 7 & 13 \end{bmatrix} = \begin{bmatrix} 9 & -15 \\ 7 & 2z+1 \end{bmatrix}$

Solve for each variable.

11.

$$\begin{bmatrix} 3x-5 & x+y \\ 12 & 9z \end{bmatrix} = \begin{bmatrix} 10 & 8 \\ 12 & 3x+y \end{bmatrix}$$

$x=5$
$y=3$
$z=2$

Use the following picture to answer 12-13.

12. Write a matrix for the prices of movie tickets where each column represents a different show time and each row represent a different age group.

13. What are the dimensions of your matrix?

3x3

Perform the indicated matrix operations. If not possible, state the reason.

14.

$$\begin{bmatrix} 4 \\ 1 \\ -3 \end{bmatrix} + \begin{bmatrix} 6 \\ -5 \\ 8 \end{bmatrix}$$

15.

$$\begin{bmatrix} -5 & 7 \\ 6 & 8 \end{bmatrix} - \begin{bmatrix} 4 & 0 & -2 \\ 9 & 0 & 1 \end{bmatrix}$$

Not the same dimensions

16.

$$\begin{bmatrix} 12 & 0 & 8 \\ 9 & 15 & -11 \end{bmatrix} - \begin{bmatrix} -3 & 0 & 4 \\ 9 & 2 & -6 \end{bmatrix}$$

17.

$$-2\begin{bmatrix} 2 & -4 & 1 \\ -3 & 5 & 8 \\ 7 & 6 & -2 \end{bmatrix}$$

$$\begin{bmatrix} -4 & 8 & -2 \\ 6 & -10 & -16 \\ -14 & -12 & 4 \end{bmatrix}$$

orm the indicated matrix operations. If not possible, state the reason.

$5\begin{bmatrix} 0 & -1 & 7 & 2 \end{bmatrix}+3\begin{bmatrix} 5 & -8 & 10 & -4 \end{bmatrix}$

19.

$$5\begin{bmatrix} 1 \\ -1 \\ -3 \end{bmatrix}+6\begin{bmatrix} -4 \\ 3 \\ 5 \end{bmatrix}-2\begin{bmatrix} -3 \\ 8 \\ -4 \end{bmatrix}$$

$$\begin{bmatrix} -13 \\ -3 \\ 23 \end{bmatrix}$$

20.

$$\frac{1}{2}\begin{bmatrix} 4 & 6 \\ 3 & 0 \end{bmatrix}-\frac{2}{3}\begin{bmatrix} 9 & 27 \\ 0 & 3 \end{bmatrix}$$

21.

$$5\begin{bmatrix} \frac{1}{2} & 0 & 1 \\ 2 & \frac{1}{3} & -1 \end{bmatrix}+4\begin{bmatrix} -2 & \frac{3}{4} & 1 \\ \frac{1}{6} & 0 & \frac{5}{8} \end{bmatrix}$$

$$\begin{bmatrix} -11/2 & 3 & 9 \\ 32/3 & 5/3 & -5/2 \end{bmatrix}$$

Use matrices A,B, and C to answer the following questions.

$$A=\begin{bmatrix} 2 & 3 \\ 5 & 6 \end{bmatrix} \qquad B=\begin{bmatrix} -1 & 7 \\ 0 & -4 \end{bmatrix} \qquad C=\begin{bmatrix} 9 & -4 \\ -6 & 5 \end{bmatrix}$$

22. 3B – 2C

23. 4A +2B – C

$$\begin{bmatrix} -3 & 30 \\ 34 & 11 \end{bmatrix}$$

Use matrices A,B, and C to answer the following questions.

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

24. A + B

25. D – B

26. $C+\frac{1}{3}D$

$$\begin{bmatrix} -2 & -1 \\ 4 & -1 \\ -7 & -4 \end{bmatrix}$$

The Cookie Cutter Bakery records each type of cookie sold at three of their branch stores. Two days of sales are shown in the spreadsheets below.

FRIDAY	Chocolate Chip	Peanut Butter	Sugar	Cut-Out
Store 1	120	97	64	75
Store 2	80	59	36	60
Store 3	72	84	29	48

SATURDAY	Chocolate Chip	Peanut Butter	Sugar	Cut-Out
Store 1	112	87	56	74
Store 2	84	65	39	70
Store 3	88	98	43	60

27. Find the sum of the two days sales expressed as a matrix.

$$\begin{bmatrix} 232 & 184 & 120 & 149 \\ 164 & 124 & 75 & 130 \\ 160 & 182 & 72 & 108 \end{bmatrix}$$

28. Find the difference in cookie sales from Friday to Saturday expressed as a matrix.
(Friday – Saturday)