Name _____ Date _____ Class _____

Select the best answer.

1. The table shows the number of books two students read each month. Which matrix displays the data in the table?

Number of Books Read per Month		
Student	**January**	**February**
Sarah	3	0
Nicole	1	8

A $\begin{bmatrix} 3 & 0 \\ 1 & 8 \end{bmatrix}$

B $\begin{bmatrix} 3 & 1 & 0 & 8 \end{bmatrix}$

C $\begin{bmatrix} 3 \\ 1 \\ 0 \\ 8 \end{bmatrix}$

2. If $A = \begin{bmatrix} 5 & 3 & 2 \\ 6 & 1 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 4 & 3 \\ 9 & 6 & 2 \end{bmatrix}$, evaluate $A + B$.

A $\begin{bmatrix} 6 & 4 & 3 \\ 7 & 2 & 4 \end{bmatrix}$

B $\begin{bmatrix} 6 & 7 & 5 \\ 15 & 7 & 7 \end{bmatrix}$

3. If $C = \begin{bmatrix} 2 & 5 \\ 5 & 0 \\ 1 & 7 \end{bmatrix}$ and $D = \begin{bmatrix} 9 & 2 \\ 3 & 4 \\ 6 & 0 \end{bmatrix}$, evaluate $C + 2D$.

A $\begin{bmatrix} 11 & 7 \\ 8 & 4 \\ 7 & 7 \end{bmatrix}$ **C** $\begin{bmatrix} 20 & 9 \\ 11 & 8 \\ 13 & 7 \end{bmatrix}$

B $\begin{bmatrix} 18 & 4 \\ 8 & 4 \\ 12 & 0 \end{bmatrix}$

4. For $S_{2 \times 4}$ and $T_{4 \times 3}$, what are the dimensions of ST?

A 2×3

B 4×4

5. If $P = \begin{bmatrix} 3 & 1 \\ 2 & -1 \end{bmatrix}$ and $Q = \begin{bmatrix} 4 & 0 \\ 2 & 3 \end{bmatrix}$, evaluate PQ.

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

B $\begin{bmatrix} 12 & 0 \\ 4 & -3 \end{bmatrix}$

C $\begin{bmatrix} 14 & 3 \\ 6 & -3 \end{bmatrix}$

6. If $A = \begin{bmatrix} 5 & 0 \\ 0 & 2 \end{bmatrix}$, evaluate A^2.

A $\begin{bmatrix} 10 & 0 \\ 0 & 4 \end{bmatrix}$

B $\begin{bmatrix} 25 & 0 \\ 0 & 4 \end{bmatrix}$

7. If $\triangle ABC$ is defined by the matrix $P = \begin{bmatrix} -7 & 4 & 2 \\ 3 & -1 & 6 \end{bmatrix}$, what are the coordinates of $\triangle ABC$ after it has been rotated 90 degrees counterclockwise?

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

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

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

8. $\triangle ABC$ has vertices $A(0, 2)$, $B(-3, -2)$, and $C(2, -4)$. What are the coordinates of the image of $\triangle ABC$ after it has been reflected using the reflection matrix $\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix}$?

A $A'(0, 2)$, $B'(-3, -4)$, $C'(-2, -4)$

B $A'(0, -2)$, $B'(-3, 2)$, $C'(2, 4)$

9. Find the determinant of $\begin{bmatrix} 5 & 3 \\ 4 & 6 \end{bmatrix}$.

A -18 **C** 42

B 18

10. Find the determinant of $\begin{bmatrix} 1 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \end{bmatrix}$.

A -2 **C** 0

B -1

11. What are the solutions of the system $\begin{cases} 3x + 5y = 29 \\ 5x + 2y = 23 \end{cases}$, where $D = \begin{vmatrix} 3 & 5 \\ 5 & 2 \end{vmatrix}$?

A $x = \dfrac{\begin{vmatrix} 3 & 29 \\ 5 & 23 \end{vmatrix}}{D}$, $y = \dfrac{\begin{vmatrix} 29 & 5 \\ 23 & 2 \end{vmatrix}}{D}$

B $x = \dfrac{\begin{vmatrix} 23 & 2 \\ 29 & 5 \end{vmatrix}}{D}$, $y = \dfrac{\begin{vmatrix} 5 & 23 \\ 3 & 29 \end{vmatrix}}{D}$

C $x = \dfrac{\begin{vmatrix} 29 & 5 \\ 23 & 2 \end{vmatrix}}{D}$, $y = \dfrac{\begin{vmatrix} 3 & 29 \\ 5 & 23 \end{vmatrix}}{D}$

12. Is $\begin{bmatrix} -1 & 2 \\ 1 & -1 \end{bmatrix}$ the inverse of $\begin{bmatrix} 1 & 2 \\ 1 & 1 \end{bmatrix}$?

A Yes

B No

13. Which matrix is the inverse of $\begin{bmatrix} 4 & 5 \\ 2 & 3 \end{bmatrix}$?

A $\dfrac{1}{2}\begin{bmatrix} -4 & 2 \\ 5 & -3 \end{bmatrix}$ **C** $\begin{bmatrix} 3 & -5 \\ -2 & 4 \end{bmatrix}$

B $\dfrac{1}{2}\begin{bmatrix} 3 & -5 \\ -2 & 4 \end{bmatrix}$

14. What is the augmented matrix for the system $\begin{cases} 7x + 2y = -9 \\ 4x - 8 = y \end{cases}$?

A $\begin{bmatrix} 7 & 2 & | & -9 \\ 4 & -8 & | & 1 \end{bmatrix}$

B $\begin{bmatrix} 7 & 2 & | & -9 \\ 4 & -1 & | & 8 \end{bmatrix}$

15. $\begin{bmatrix} 1 & 0 & | & -4 \\ 0 & 1 & | & 6 \end{bmatrix}$ is the reduced row-echelon form of which of the following?

A $\begin{bmatrix} -4 & 0 & | & 1 \\ 0 & 6 & | & 1 \end{bmatrix}$

B $\begin{bmatrix} -4 & -2 & | & 8 \\ 6 & 3 & | & 18 \end{bmatrix}$

C $\begin{bmatrix} 2 & 5 & | & 22 \\ 3 & 1 & | & -6 \end{bmatrix}$

16. The system of equations $\begin{cases} 2x + 2y - z = 13 \\ 4x - y = 7 \\ 7y - 4z = 11 \end{cases}$ represents the number of red, green, and blue cubes in a box. Use x as the number of red cubes, y as the number of green cubes, and z as the number of blue cubes. What is the number of each color of cubes in the box?

A 3 red, 5 green, and 3 blue

B 4 red, 9 green, and 13 blue

Answer Key Algebra 2

Chapter Test Form A: Multiple Choice

1. A
2. C
3. C
4. A
5. C
6. B
7. A
8. A

9. B
10. A
11. C
12. A
13. B
14. B
15. C
16. B

Holt Algebra 2