

Accelerated Math 2 and Math 3

Unit 1 Assessment Matrices

Review

1. $A = \begin{bmatrix} -3 & 2 \\ 1 & -6 \end{bmatrix}$

$B = \begin{bmatrix} 2 & -3 \\ 1 & 0 \end{bmatrix}$

Find AB.

a. $\begin{bmatrix} -6 & -6 \\ 1 & 0 \end{bmatrix}$

b. $\begin{bmatrix} -4 & 9 \\ -4 & -3 \end{bmatrix}$

c. $\begin{bmatrix} -12 & 18 \\ -12 & -9 \end{bmatrix}$

d. $\begin{bmatrix} 9 & 4 \\ 0 & -6 \end{bmatrix}$

2. Find the det (B) from #1.

a. -1

b. 5

c. 3

d. -3

3. The vertices of a triangle are (-2,0), (0,3), and (2,-3). Find the area of the triangle using matrices and the determinant.

a. 18

b. 9

c. 36

d. 3

4. Solve the system of equations using matrices. $3x - 3y = -6$

$9x - 2y = 3$

a. 1,3

b. 2,6

c. 3,-6

d. 9,2

5. A parabola passes through the points (1,-2) (2,1) and (3,6). Using matrices, find the equation of the parabola.

a. $x-3=y$

b. $x^2-3x=y$

c. $x^2 - 3 = y$

d. $x^2-x-3=y$

6. Judy bought 3.5 pounds of rice and 4 pounds of sunflower seeds for \$4.90. Trevor bought 2 pounds of rice and 0.5 pound of sunflower seeds for \$1.05. What is the per pound price for each item? Set up two equations and solve using matrices.

a. 0.38, 0.68

b. 0.98, 0.34

c. .28, 0.98

d. 1.00, 2.00

7-16
Use the following matrices to answer questions 7-16. Show all work. DO NOT use the graphing calculator!!!! Turn this part in when you are finished.

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

$$B = \begin{bmatrix} 2 & -3 \\ 1 & 0 \end{bmatrix}$$

$$C = \begin{bmatrix} 1 & 1 & 2 \\ -2 & 0 & 5 \end{bmatrix}$$

$$F = \begin{bmatrix} 4 & 3 & 2 \\ 0 & 4 & 2 \\ -1 & 1 & 4 \end{bmatrix}$$

7. $A + B$

8. $\frac{1}{2} C$

9. CF

10. FC

11. A^{-1}

12. F^T

13. $\text{Det}(F)$

14. What is the multiplicative identity matrix for a 3×3 matrix?

15. Are matrices commutative under addition? Multiplication? Explain.

16. Does the associative property for addition and multiplication hold true for Matrices? Explain.

___ 17. Find the product. $\begin{bmatrix} 2 & 5 & -8 \end{bmatrix} \begin{bmatrix} -6 \\ 8 \\ 2 \end{bmatrix}$

a. $\begin{bmatrix} 2 & -6 \\ 5 & 8 \\ -8 & 2 \end{bmatrix}$

c. $\begin{bmatrix} 2 & 5 & -8 \\ -6 & 8 & 2 \end{bmatrix}$

b. $\begin{bmatrix} -12 \\ 40 \\ -16 \end{bmatrix}$

d. [12]

___ 18. Find the product. $\begin{bmatrix} 4 & 0 \\ 9 & 8 \end{bmatrix} \begin{bmatrix} -5 & -1 \\ -1 & -2 \end{bmatrix}$

a. $\begin{bmatrix} -45 & -8 \\ -9 & -16 \end{bmatrix}$

c. $\begin{bmatrix} -20 & -4 \\ -25 & -53 \end{bmatrix}$

b. $\begin{bmatrix} -20 & -4 \\ -53 & -25 \end{bmatrix}$

d. $\begin{bmatrix} -20 & 0 \\ -4 & 0 \end{bmatrix}$

___ 19. Find $7A - 8B$. $A = \begin{bmatrix} 1 & -1 \\ 0 & -3 \\ 5 & 2 \end{bmatrix}$ $B = \begin{bmatrix} -2 & 1 \\ 5 & 4 \\ 0 & -7 \end{bmatrix}$

a. $\begin{bmatrix} 23 & -15 \\ 0 & -53 \\ 0 & 70 \end{bmatrix}$

c. $\begin{bmatrix} 23 & -15 \\ -40 & -53 \\ 35 & 70 \end{bmatrix}$

b. $\begin{bmatrix} 23 & -15 \\ 40 & 11 \\ 35 & -42 \end{bmatrix}$

d. $\begin{bmatrix} -9 & 1 \\ -40 & -53 \\ -35 & -42 \end{bmatrix}$

Determine whether the product is defined or undefined. If defined, give the dimensions of the product matrix.

___ 20. $\begin{bmatrix} 1 & 1 & -4 \\ 5 & 6 & 0 \end{bmatrix} \begin{bmatrix} 9 \\ 1 \\ -7 \end{bmatrix}$

a. defined; 3×3

c. defined; 2×3

b. defined; 2×1

d. undefined

_____ 22. Which of the following is the multiplicative inverse of $\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$?

a. $\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$

b. $\begin{bmatrix} 1 & -2 \\ 0 & 1 \end{bmatrix}$

c. $\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$

d. $\begin{bmatrix} 1 & -2 \\ 0 & -1 \end{bmatrix}$

_____ 23. Evaluate the determinant of the matrix $\begin{bmatrix} 4 & -1 \\ -9 & 2 \end{bmatrix}$

a. 17

b. 1

c. -1

d. -17

_____ 24. Evaluate the determinant of the matrix

$$\begin{bmatrix} \frac{1}{6} & \frac{1}{2} \\ \frac{1}{2} & \frac{4}{5} \end{bmatrix}$$

a. 0

b. $\frac{23}{60}$

c. $-\frac{7}{60}$

d. $\frac{7}{60}$

_____ 25. Determine whether the matrix has an inverse. If an inverse exists, find it

$$\begin{bmatrix} -5 & -18 \\ 2 & 7 \end{bmatrix}$$

a. $\begin{bmatrix} 7 & 18 \\ -2 & 5 \end{bmatrix}$

c. does not exist

b. $\begin{bmatrix} -5 & -18 \\ -2 & -5 \end{bmatrix}$

d. $\begin{bmatrix} 7 & 18 \\ -2 & -5 \end{bmatrix}$

_____ 26. Determine whether the matrix has an inverse. If an inverse exists, find it

$$\begin{bmatrix} 0 & 7 \\ 0 & -3 \end{bmatrix}$$

a. $\begin{bmatrix} 0 & 7 \\ 0 & 0 \end{bmatrix}$

c. does not exist

b. $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

d. $\begin{bmatrix} 0 & 7 \\ 0 & -3 \end{bmatrix}$