Precalculus Basic Matrix Operations and Vocabulary

Consider the following matrices:

A =  B =  C =  D = 

1. What are the dimensions of matrix A? \_\_\_\_\_\_\_\_\_\_\_\_ matrix B? \_\_\_\_\_\_\_\_\_\_\_\_

matrix C? \_\_\_\_\_\_\_\_\_\_\_\_ matrix D? \_\_\_\_\_\_\_\_\_\_\_\_\_

2. Identify the following entries.

A21 B­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­­22 C12 D23

3. Which of the matrices above can be added or subtracted?

4. Is C – D defined? Explain.

Perform the indicated operation.

5.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Solve each matrix equation with the given information. Use inverse operations to solve, just as in an algebraic equation. Treat X as a variable; it is an unknown matrix.

Let A = , B = , and C = 

8. 4A + X = B \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. X + 3B = C \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. 2X – A = 5B \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Perform the indicated operations. If not possible, give an explanation.

|  |  |
| --- | --- |
| 11. | 12. |
| 13. | 14. |

#15-18. Solve the following matrix equations for each of the variables.

|  |  |
| --- | --- |
| 15. | 16. |
| 17. | 18. |

Essential Questions

19. How do we determine if matrices can be added or subtracted?

20. How do we determine if two matrices are equal?

21. How do we determine the dimensions of a matrix?