Matrix Operations

Diagonals:

Sums and Scalar Multiples: Note that two matrices are **equal** (not equivalent) if they are the same size and their corresponding entries are equal.

Theorem 1: Let A, B, C be matrices of the same size, and let r and s be scalars.

1.

2.

3.

4.

5.

6.

Matrix Multiplication

Definition:

Example of Matrix Multiplication:

Example of Matrix Multiplication Size:

Identity Matrix:

Theorem 2 – **Properties of Matrix Multiplication**:

1.

2.

3.

4.

5.

Warning! Not Properties of Matrix Multiplication:

1.

2.

3.

Powers of a Matrix:

Transpose of a Matrix:

Theorem 3 – **Properties of Matrix Transposition**:
Let A and B be matrices of the appropriate size, and let r be a scalar.

1.

2.

3.

4.

Examples: