**Matrix Discovery** **Name: _____**

 Period:

Use these matrices to perform the indicated functions and answer the problems below.

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

$$D = \begin{bmatrix} 6 & 2 \\ -7 & 8 \\ -3 & 1 \end{bmatrix} \qquad E = \begin{bmatrix} 1 & -3 \\ -4 & 0 \end{bmatrix} \qquad F = \begin{bmatrix} -11 & -5 & 1 \\ 0 & 2 & 8 \end{bmatrix}$$

1) a) Calculate E + A

b) Write the dimensions of E + A.

2) a) Calculate B – F

b) Write the dimensions of B – F.

3) Calculate DE.

4) Calculate AC.

5) Fill in this table:

| Dimensions of D | Dimensions of E | Dimensions of DE |
|---|---|---|
| | | |

6) Fill in this table:

| Dimensions of A | Dimensions of C | Dimensions of AC |
|---|---|---|
| | | |

7) Fill in this table:

| Dimensions of C | Dimensions of E | Dimensions of CE |
|---|---|---|
| | | |

8) Fill in this table:

| Dimensions of E | Dimensions of C | Dimensions of EC |
|---|---|---|
| | | |

9) When multiplying matrices, which dimension numbers must match?

10) When multiplying matrices, how can the dimensions of the product (the answer) be determined from the dimensions of the factors?