Activity 2 – Useful Inverses

1. When are inverses useful? Let’s say we have the system of equations below:

 3x+5y=2

 7x-2y=3

We can represent this system of equations by a single matrix equation of the form Ax=b as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 3 | 5 | times | X | = | 2 |
| 7 | -2 |  | Y |  | 3 |

 Here A is called the coefficient matrix, x the variable matrix, and b the constant matrix. Do matrix multiplication below to make sure that this equation is true.

1. Use the matrix calculator (http://www.mathsisfun.com/algebra/matrix-calculator.html) to find the inverse of A. What happens if we multiply both sides of the equation on the left by A?
2. Now that we’ve looked at inverses, let’s check out determinants.

What is the relationship between det(A) and det(A-1)?