Pre Calculus BC **Properties** **Name_____**

1. Determine whether each set is closed for addition. Provide an example if not closed.

a) {0, 1} b) {1, 2} c) {0, 2, 4, 6...} d) {1, 3, 5, 7...} e) {-1, -2, -3, -4....}

2. Use the same sets from #1 and check for closure under multiplication.

Each of the problems below, 3 - 8, refers to the following five operations and sets:

a) $x * y = x + y + 1$, *Natural #'s* b) $x * y = \frac{x+y}{x-y}$, *Rational #*'s

c) $x * y = x + y - xy$, *Integers* d) $x * y = 3xy$, *Real #'s*

e)

*	2	3	4	5
2	4	5	2	3
3	5	2	3	4
4	2	3	4	5
5	3	4	5	2

3. For each operation defined above find $2*3$.

4. Determine whether the indicated sets are closed under the given operations.

5. Determine whether $*$ is commutative.

6. Determine whether $*$ is associative

7. Determine whether $*$ has an identity,

8. IF there is an identity, find the inverse of 5.