Sep 6 2012

This is group homework. Remember these rules which are designed to help you get the most out of group homework:

- Discuss it, make sure you understand it, but don't copy the results.
- Separate from anyone you worked with.
- One hour (minimum) later, write it up.
- List the people you discussed it with.

Which of the following expressions define operations on the set of integers?   Of those that do, which are associative? Which are commutative?   Which have identity elements? Prove all your answers.

1. $a ® b = ab + 1$

2. $a ® b = a$

3. $a ® b = a^2 + b^2$

4. $a ® b = 3$