

Name: _____

Let A be a set and $\circ$ an operation on A .

1. State the definition for what it means that $\circ$ is an associative operation. (Be sure to use quantifiers.)

$\circ$ is associative means $\forall a, b, c \in A$

$$(a \circ b) \circ c = a \circ (b \circ c).$$

2. Let $e \in A$. State what it means for e to be a $\circ$ -identity.

e is a $\circ$ -identity if $\forall a \in A, e \circ a = a \circ e = a.$