Math 525 — Quiz 12 – November 3

Name:_____

Let R be a ring (not necessarily commutative), M a right R-module, and N a left R-module.

1. What type of object is the tensor product $M \otimes_R N$?

2. What is the *definition* of the tensor product $M \otimes_R N$?

$M \otimes_R N$ has a universal property with respect to maps $\phi \colon M \otimes_R N \to L$.

3. In the statement of the universal property, what kind of object is L?

4. In the statement of the universal property, what kind of map is ϕ?

5. What is the universal property of the tensor product $M \otimes_R N$?