1. What do you think a submodule is? Or a homomorphism of R-modules?

2. Let R be a ring. Consider the polynomial ring R[x, y]. The set M of all polynomials in x, y of degree three or higher is a R[x, y]-module. Find a generating set for M.

3. Let M, N be R-modules and N a submodule of M. Suppose that N and M/N are finitely generated. Why must M be finitely generated?