

PRELIMINARIES

In these notes we shall generally follow the usage of Bourbaki [13] for commutative algebra, Crowell and Fox [43] for combinatorial group theory, and Rourke and Sanderson [159] for geometric topology. The book of Magnus, Karrass and Solitar [123] is a more comprehensive reference for combinatorial group theory, while the books of Hempel [69], Rolfsen [157] and Spanier [177] are useful for other aspects of topology.

All manifolds and maps between them shall be assumed PL unless otherwise stated. The expression $A \approx B$ means that the objects A and B are isomorphic in some category appropriate to the context. When there is a canonical isomorphism, or after a particular isomorphism has been chosen, we shall write $A = B$. (For instance the fundamental group of a circle is isomorphic to the additive group of the integers \mathbb{Z} , but there are two possible isomorphisms, and choosing one corresponds to choosing an orientation for the circle).

Qualifications and subscripts shall often be omitted, when there is no risk of ambiguity. In particular " μ -component n -link" may be abbreviated to "link", and the symbols Λ_μ , $X(L)$, $G(L)$ may appear as Λ , X and G .