The following *proofs* will not be asked *as bookwork* in a 2025 on MA22017.
That does not mean that the ideas in them cannot be used or that you cannot be expected to know them. It only means that none of these will appear as pure bookwork: you will not be asked to *reproduce* them from memory.

1.23 φ is a group homomorphism if it preserves multiplication
1.31 A bijective homomorphism is an isomorphism
1.41 S generates G if and only if every element of G can be writtten as a product of elements of S and their inverses.
2.28 2nd isomorphism theorem
2.29 3rd isomorphism theorem
3.19 The orbit-stabiliser theorem
4.29 ev is a homomorphism
5.41 Chinese remaindes theorem
5.50 The relation used to defined fields of fractions respects arithmetic operations
5.52 Verification of the properties of fields of fractions
6.29 R is a PID implies R is a UFD
6.42 $f \in R[X]$ is irreducible if and only if it is irreducible in R or primitive and irreducible in $\mathcal{Q}(R)[X]$
6.43 R is a UFD =¿ $R[X]$ is a UFD
7.3 Three characterisations of Noetherian
7.29 The structure theorem for modules over a PID
8.26 Exterior and symmetric power are the only subpaces preserved by the permutation group acting on the tensor power.