

Final Examination

[The final examination for the course was held in a regular classroom, where the students did not have access to GAP. The exam included one question, however, that required them to interpret GAP code and identify the theorem that it illustrated. This question was worth 5 points on a 110-point examination.]

1. In your algebra notebook you find a sheet of paper with the following GAP printout. What important theorem does this computation verify?

```
gap> g:=SymmetricGroup(3);
Sym( [ 1 .. 3 ] )
gap> ConjugacyClasses(g);
[ ()^G, (1,2)^G, (1,2,3)^G ]
gap> Size(ConjugacyClass(g,()));
1
gap> Size(ConjugacyClass(g,(1,2)));
3
gap> Size(ConjugacyClass(g,(1,2,3)));
2
gap> 1+3+2;
6
```