```
theory Problem-1A imports HOL-Algebra.Algebra begin
```

It seems that one cannot use \heartsuit as variable. My disappointment is immeasurable and my day is ruined.

```
theorem problem 1A:
 assumes group: group G
 {\bf assumes}\ subgrp{:}\ subgroup\ H\ G
 assumes proper: H \subset carrier G
 assumes iso: G \cong G(|carrier| := H)
 shows infinite (carrier G)
 from iso obtain h where bij: bij-betw h (carrier G) H
   unfolding is-iso-def iso-def by auto
 assume finite: finite (carrier G)
 with proper have card H < card (carrier G)
   by (simp add: psubset-card-mono)
 moreover from finite and bij have card H = card (carrier G)
   using bij-betw-same-card by fastforce
 ultimately show False by auto
qed
end
```