



1 Complete this table about the properties of group 1 and group 7.

| property | group 1 | group 7 |
|--|----------------------|-------------------|
| name of group | alkali metals | halogens |
| metals or non-metals | metals | non-metals |
| number of electrons in outer shell | 1 | 7 |
| charge on ions formed when they react | +1 | -1 |
| trend in melting & boiling points down group | decrease | increase |
| trend in reactivity down group | increase | decrease |

2 Bromine is an element in Group 7.

a Give the formula of the element bromine. **Br₂**

b A solution of bromine dissolved in water was added drop by drop to a solution of potassium chloride. Explain why no reaction takes place.

bromine is less reactive than chlorine and so cannot displace chlorine

c A solution of bromine dissolved in water was added drop by drop to a solution of potassium iodide. A reaction took place giving a brown solution.

i Explain why this reaction takes place.

bromine is more reactive than iodine and so can displace iodine

ii Write a word equation for this reaction.

bromine + potassium iodide → iodine + potassium bromide

d Explain the trend in reactivity down Group 7.

**going down the group:
it becomes more difficult to lose an electron
as the atoms get bigger and so the electron gained is further away
so there is a weaker attraction between the nucleus and the electron gained**