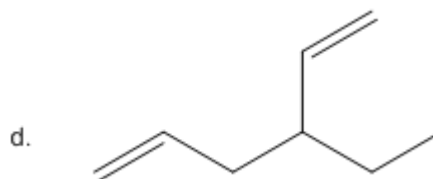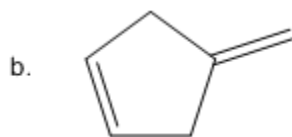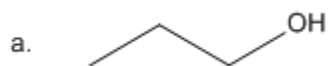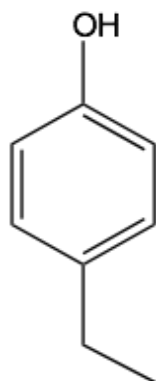## CONCEPT: ^{1}H NMR – TOTAL NUMBER OF SIGNALS

There are as many signals on each spectrum as there are unique, non-equivalent protons.

- Equivalent protons are defined as protons that have the same prospective on the molecule
- For now, let's assume that hydrogens bound to the _____ _____ are *equivalent*
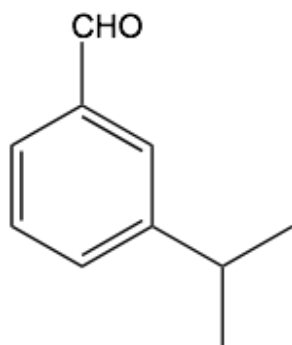 - □ Symmetry *will reduce the total number* of signals

EXAMPLE: How many different types of protons (signals) are there on each molecule?

a.

c.

b.

d.

PRACTICE: How many types of electrically unique protons (peaks) are there in the following molecule?

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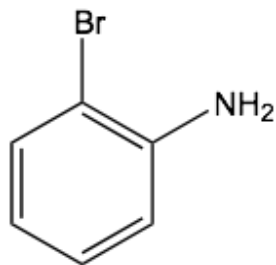
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