

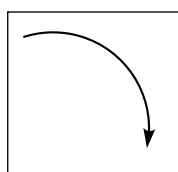
Reaction mechanisms

Chemists use reaction mechanisms to show what they think might be happening as molecules interact during chemical reactions.

When drawing reaction mechanisms the chemist usually assumes:

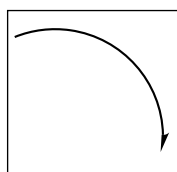
1. that the reaction occurs in several distinct steps;
2. that each step can be represented as the movement of electrons; and
3. that sometimes electrons move as pairs, and sometimes they move individually.

Diagrams showing the steps in reaction mechanisms usually show the molecules and/or ions (shown by + and -) and/or radicals (shown by •) involved, as well as arrows showing the movement of electrons. Two types of arrows are used:



curly arrow

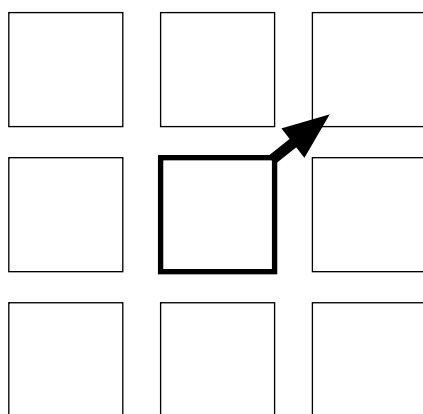
an arrow with a full head (a 'curly arrow') represents a pair of electrons moving



fish-hook arrow

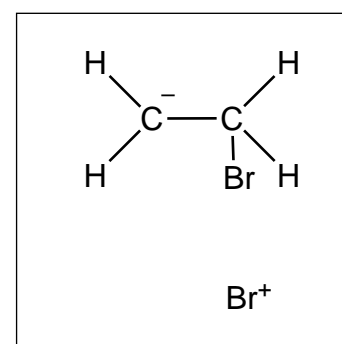
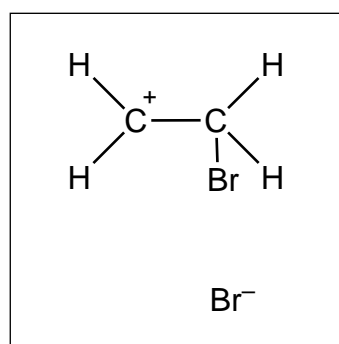
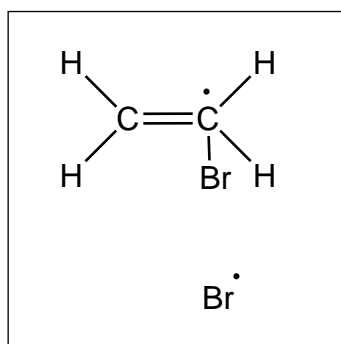
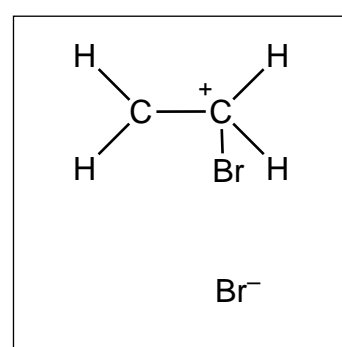
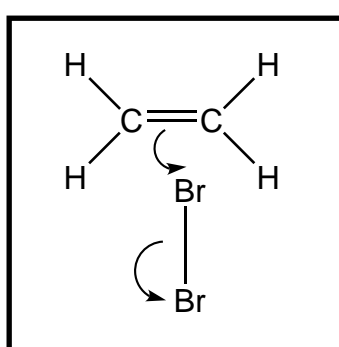
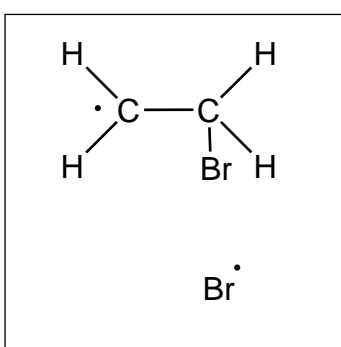
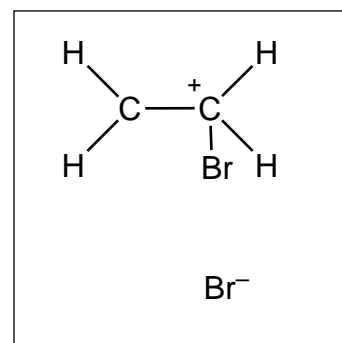
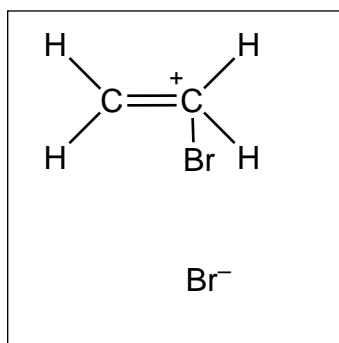
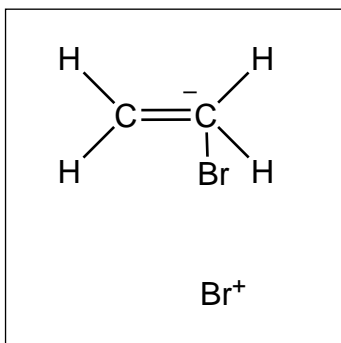
an arrow with a half arrow-head (a 'fish-hook') represents the movement of a single electron

There are two questions in this exercise. The questions each consist of a central diagram showing the initial stage in a reaction mechanism, surrounded by a selection of suggestions for the result of that step. Your task in each case is to identify which of the diagrams gives the correct outcome of that reaction step. Draw a large arrow showing which diagram is correct, as in the example below.



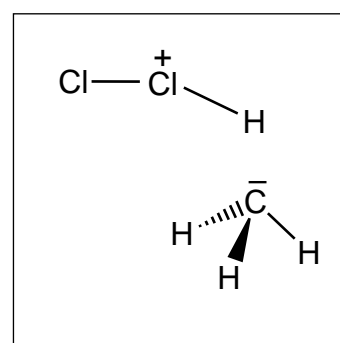
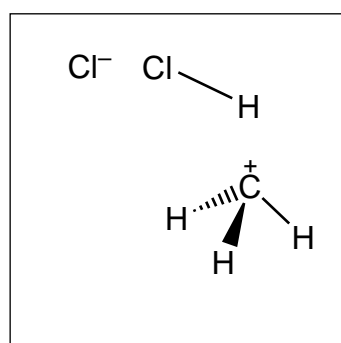
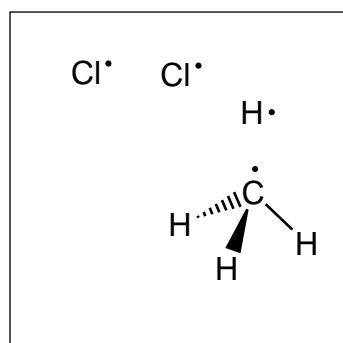
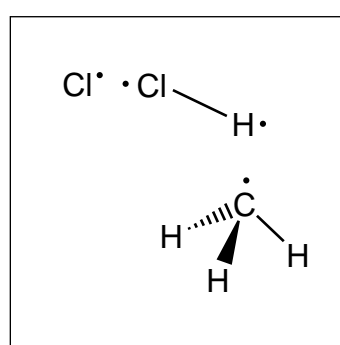
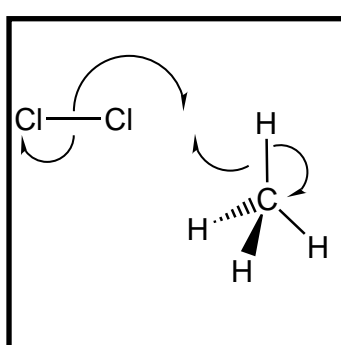
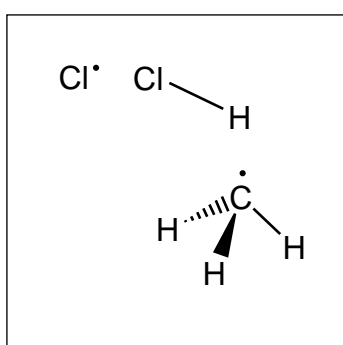
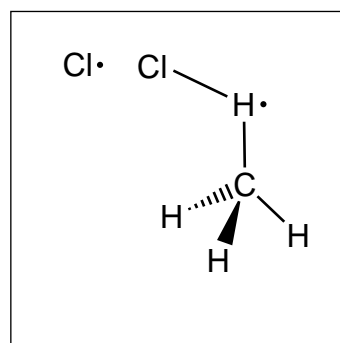
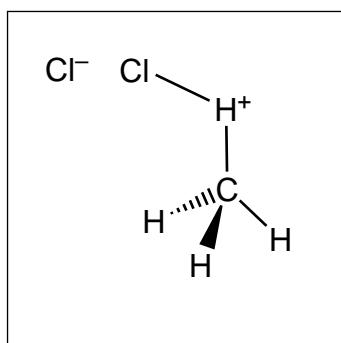
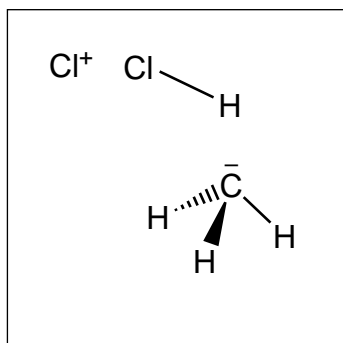
Try and explain your reason(s) for selecting the diagram you chose.

Reaction mechanism 1



I selected this diagram because:

Reaction mechanism 2

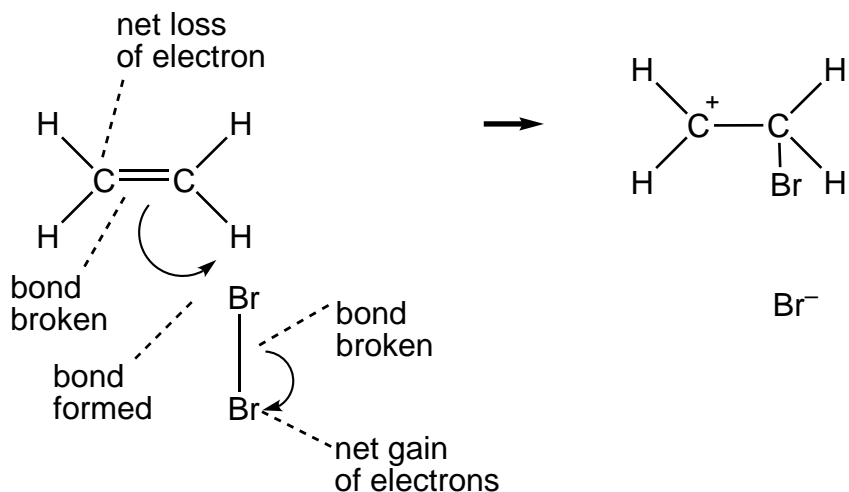


I selected this diagram because:

Reaction mechanisms revealed

Reaction mechanism 1

The diagrams below show and explain the correct answer to the question about the ionic reaction mechanism.



Reaction mechanism 2

The diagrams below show and explain the correct answer to the question about the free radical mechanism.

