## Alkenes

1. **State the formulae for the following alkenes:**

   a **An alkene with 2 carbon atoms.**
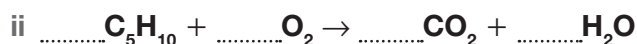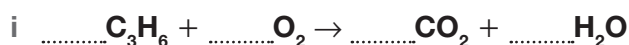
   ...........................................................................................................................................................

   b **An alkene with 12 hydrogen atoms.**

   ...........................................................................................................................................................

2. **Alkenes can be used as fuels and undergo complete combustion in plenty of air.**

   a **Balance the symbol equations to show the complete combustion of the alkenes below.**
   (2 marks, ★★★)

   i ...........$C_3H_6$ + ...........$O_2 \rightarrow$ ...........$CO_2$ + ...........$H_2O$

   ii ...........$C_5H_{10}$ + ...........$O_2 \rightarrow$ ...........$CO_2$ + ...........$H_2O$

   b **Name the alkene in the reactions above.** (2 marks, ★★)

   i ................................................................ ii ................................................................

## Cracking and alkenes

1. **Choose the correct word from the box below to complete the sentences about cracking.**
   (3 marks, ★★)

   | alcohol | solid | alkene | bigger | vapour | smaller |
   |---------|-------|--------|--------|--------|---------|

   Cracking is the process used to break down alkanes into ...................., more useful molecules.

   During catalytic cracking, an alkane is heated until it turns into a .................... and is passed over a hot catalyst.

   The products of cracking are always an alkane and at least one .....................

   **DO IT!**

   Choose an alkane and practise writing equations to show the products of cracking. Just make sure that:

   - At least one of the products is an alkene
   - The numbers of carbon and hydrogen are the same on each side.

   Here are some examples:

   $C_{12}H_{26} \rightarrow C_{10}H_{22} + C_2H_4$

   $C_{12}H_{26} \rightarrow C_9H_{20} + C_3H_6$

   $C_{12}H_{26} \rightarrow C_6H_{14} + C_2H_4 + C_4H_8$