

Solutions

Each answer shows the steps, then the **result**.

2.1

- tetrahedral; 109.5°

2.2

- 1 σ bond and 1 π bond

3.1 B

- Ethene's carbons are sp^2 hybridised and the molecule is planar

3.2 C

- Methane's bond angle is 109.5°

3.3

(a)

- linear; 180°

(b)

- the carbons are sp^2 hybridised with 120° bond angles; all the atoms lie in one plane around the $C=C$ double bond, so it is planar

3.4

- five σ bonds (4 $C-H$ and 1 $C-C$) formed by direct overlap; one π bond from sideways overlap of p orbitals above and below the $C=C$