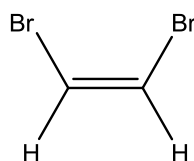


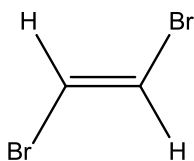
1. What is a stereoisomer?
2. Draw and identify both isomers of the following compounds (*cis/trans* or E/Z);  
(a) 1,2-dibromoethene (b) 2,3-dichlorobut-2-ene
3. Using the following refcodes draw the molecule and decide if each is either *cis* or *trans*;  
(a) ABIKUR (b) CUNGAT (c) PAPVAD  
(d) MALIAC13
4. Using the following refcodes state whether the molecule is an E or Z isomer and explain your reasoning;  
(a) GEVREE (b) FOCLOY
5. Using the extra rules in the extended theory sheet can you state whether the molecule is E or Z and explain your reasoning;  
(a) FACROQ (b) COXDHN01

## Answers

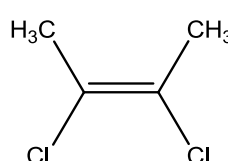
1. Stereoisomers are two molecules that have the same structural formula but have a different three-dimensional arrangement of their atoms in space.



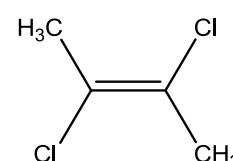
Cis



Trans



Cis



Trans

2. (a)

3. (a) *trans* because the same groups are on opposite sides of the double bond.

(b) *trans* because the H groups are on opposite sides.

(c) neither *cis* or *trans* as all groups are the same.

(d) *cis* as groups are on the same side.

4. (a) E because the priority groups are on the opposite sides. On the left hand side CHO has a higher priority than Ph (phenyl; C<sub>6</sub>H<sub>5</sub>).

(b) E because the priority groups Hg and Cl are on opposite sides.

5. (a) E because the carbonyl and the alcohol are higher in priority than H and C and are on opposite sides.

(b) Z because the chlorine atoms take priority and are on the same side.