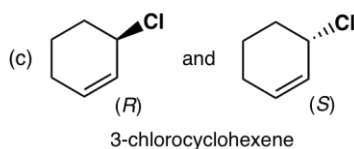
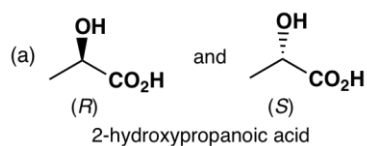
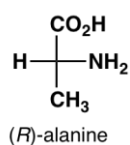
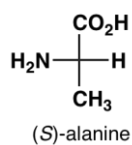
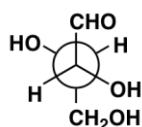
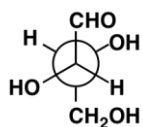
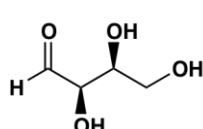
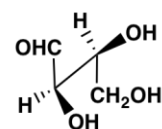
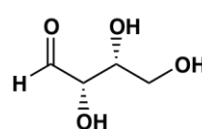
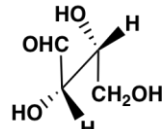
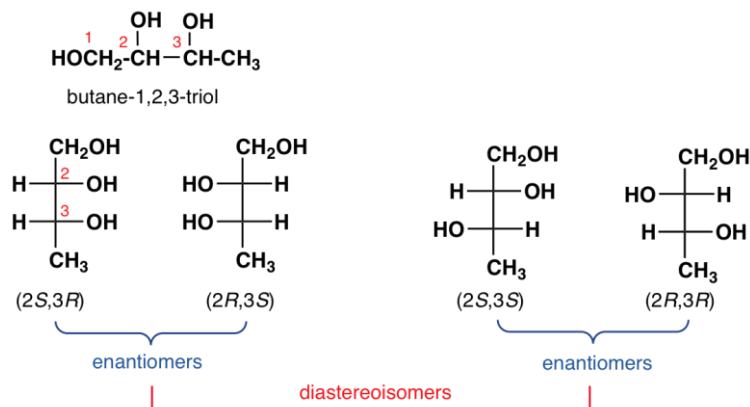
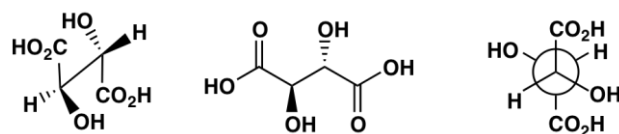


Solutions to exercises, Chapter 11**11.1** Chiral objects: (a), (d), (f)**11.2** Achiral molecules: (b), (d)**11.3** (a) *R* (b) *S* (c) *R***11.4** (a) *R* (b) *R* (c) *R***11.5****11.6***(2R,3R)* isomer*(2S,3S)* isomer**11.7***(2R,3S)* isomer*(2S,3R)* isomer

11.8



11.9

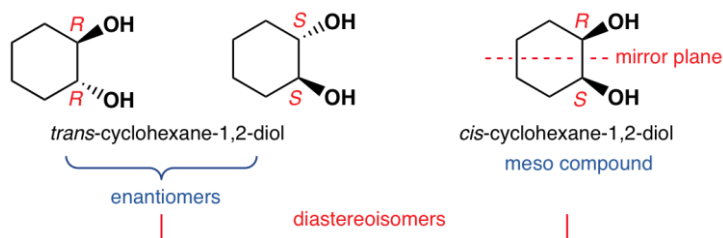


11.10 (a) (1) 2*S*,3*R* (2) 2*R*,3*S* (3) 2*S*,3*S* (4) 2*R*,3*R*

(b) Structures (1) and (2) can be superposed so are of the same compound: the meso compound, (2*R*,3*S*)-butane-2,3-diol.

(c) Structures (3) and (4) are enantiomers, and diastereoisomers of (1) or (2).

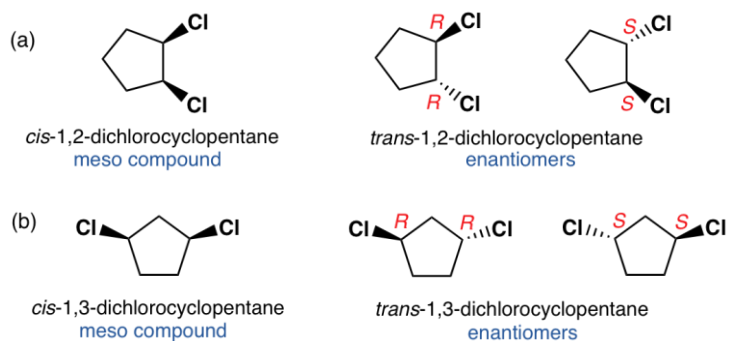
11.11 (a) *trans*-Cyclohexane-1,2-diol exists as a pair of enantiomers; the *cis* isomer has a mirror plane, so is a meso compound.



(b) *trans*- and *cis*-cyclohexane-1,4-diol are diastereoisomers, and constitutional isomers of the cyclohexane-1,2-diols; both have a mirror plane, so they are achiral, and neither C1 nor C4 is a chirality centre in either molecule.



11.12



11.13 Chiral: (b), (d), (e) Achiral: (a), (c), (f)

11.14 (b), (c), (e)