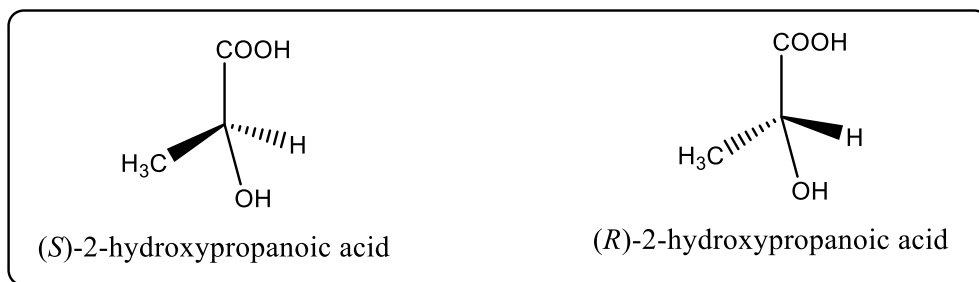
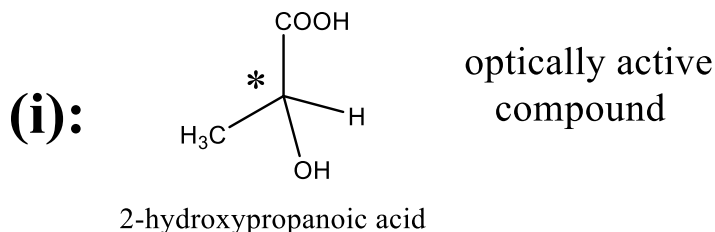


## Answer on Question #85387 – Chemistry – Other

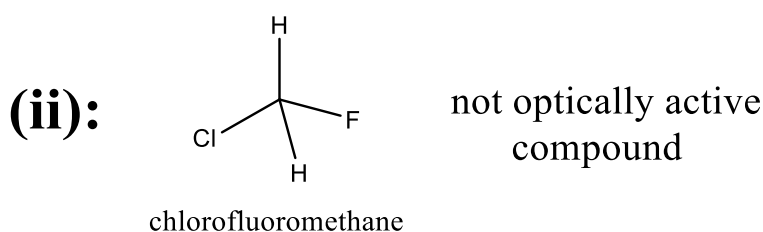
### Task:

Will the following molecules be optically active? (i)  $\text{CH}_3\text{CH}(\text{OH})\text{COOH}$  (ii)  $\text{CH}_2\text{ClF}$ . Justify your answer on the basis of symmetry considerations.

### Solution:



The carbon atom (\*) in 2-hydroxypropanoic acid carries four different substituents: H, OH,  $\text{CH}_3$ , and COOH. As a result, this molecule is *chiral* and it forms enantiomers.



The carbon atom in chlorofluoromethane contains two identical H substituents. As a result, this compound is *achiral* and does not form enantiomers.

**Answer:** (i) will be optically active; (ii) will not optically active.