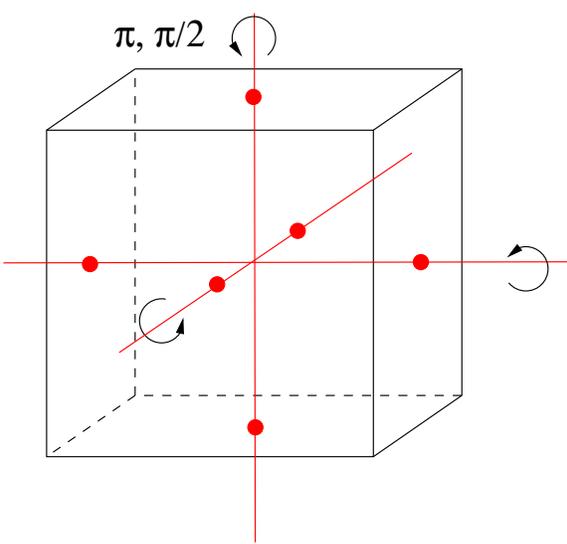
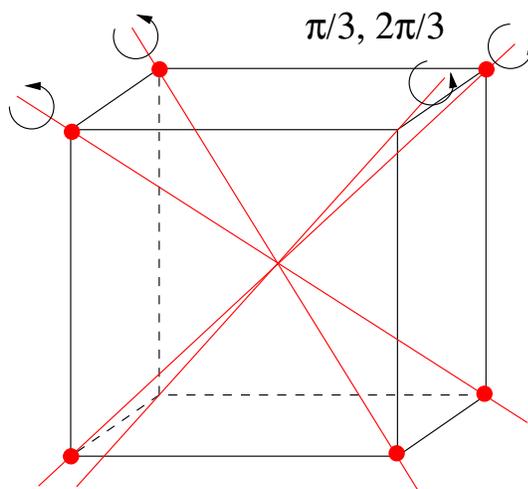


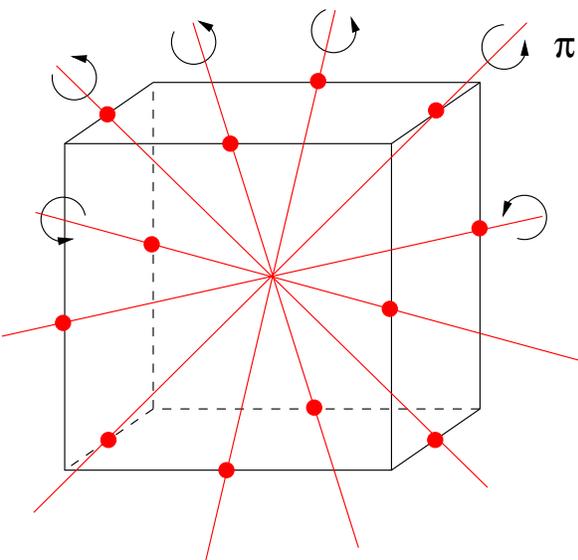
Symmetries of a cube (Octahedral group)



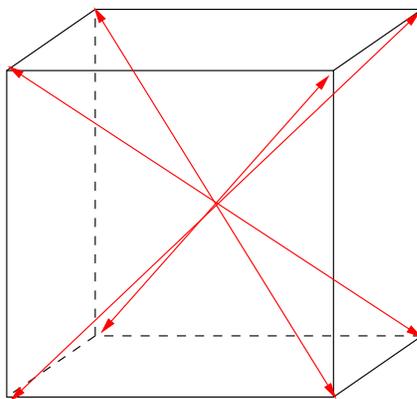
$$3 \times 3 = 9$$



$$4 \times 2 = 8$$



$$6 \times 1 = 6$$



Inversion

Including the identity gives 24 proper (chiral) operations;
Including inversion gives 24 achiral operations = 48 in total.