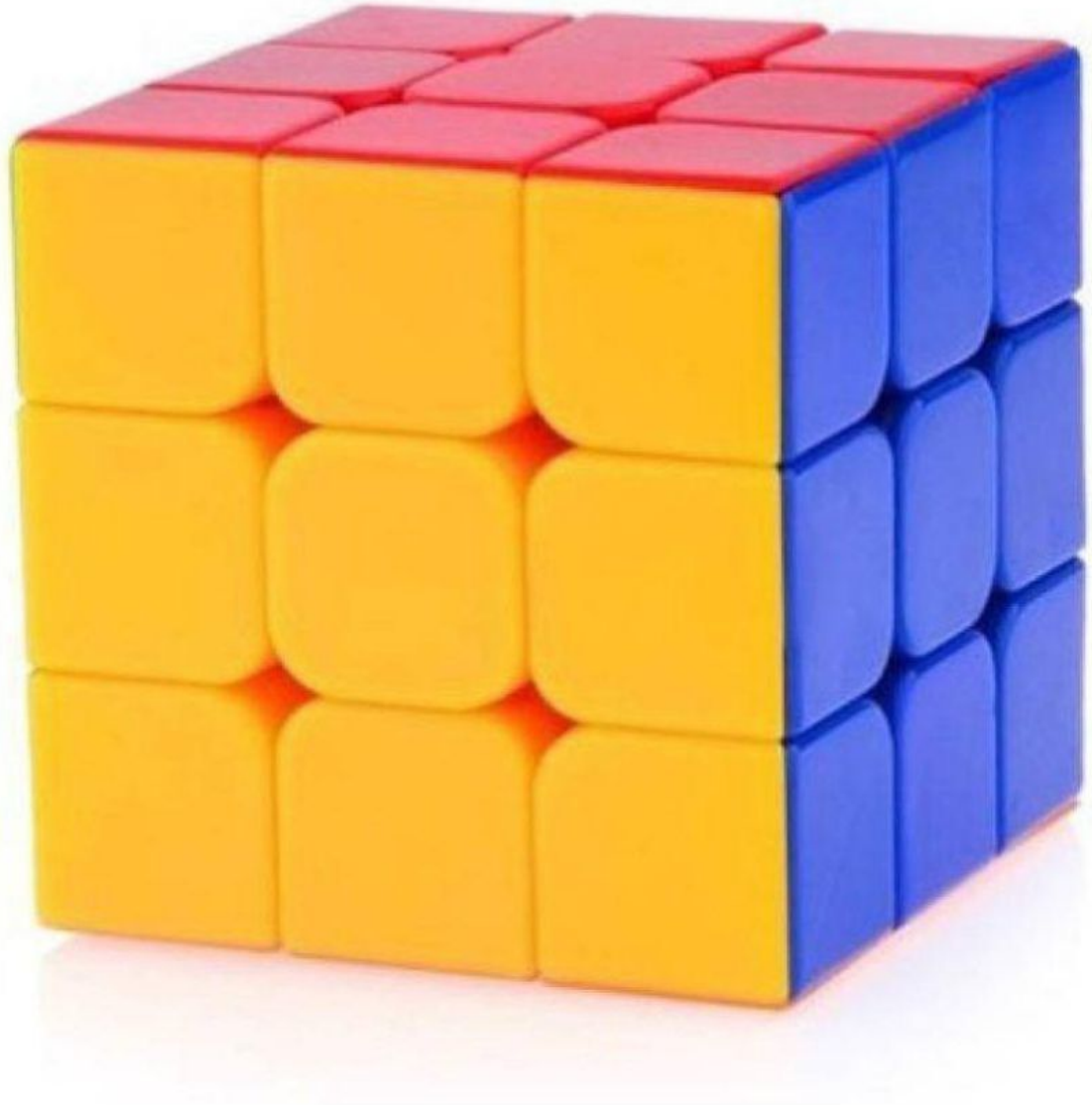
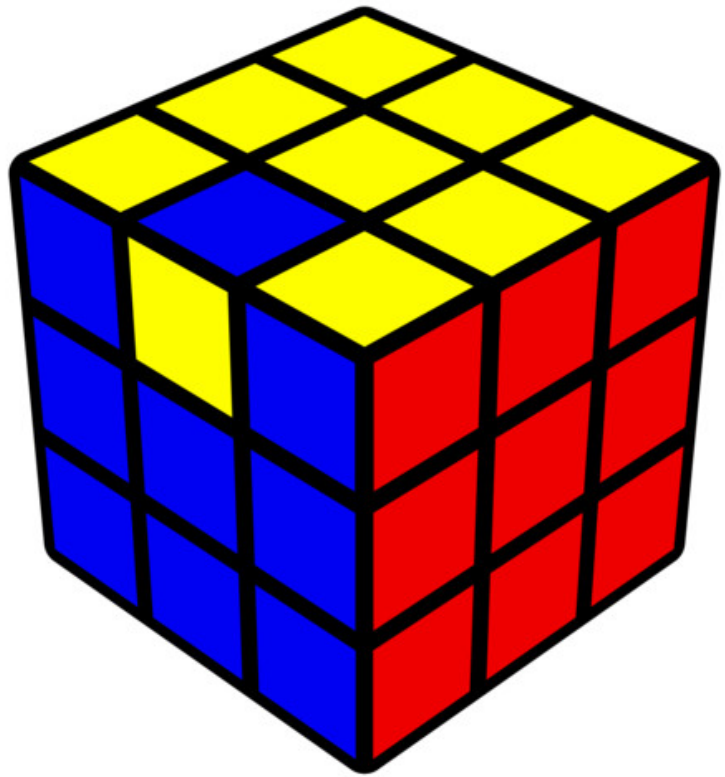
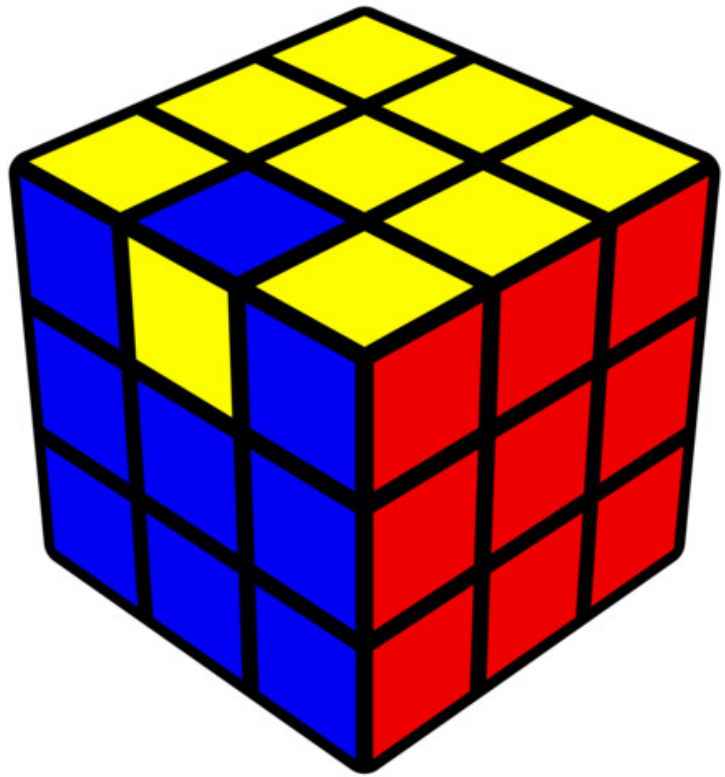


Permutation group: S_{12}



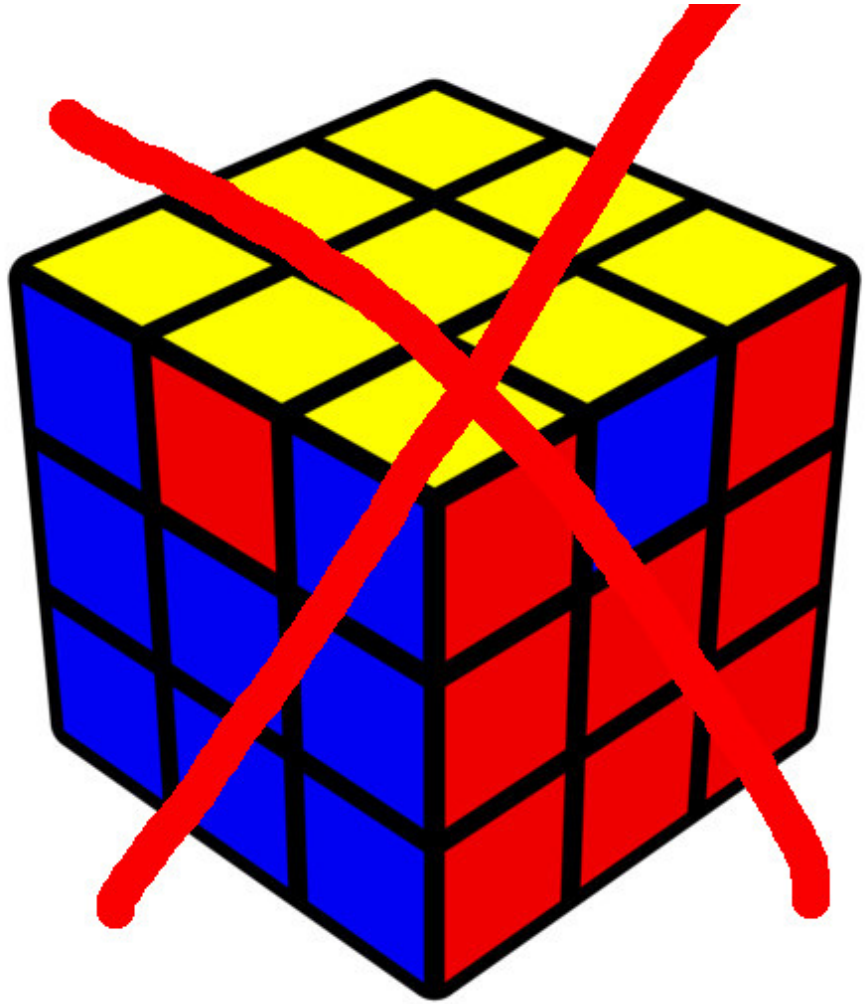


$$(\mathbb{Z}/2\mathbb{Z})^{12} \rtimes S_{12}$$

$$(\mathbb{Z}/3\mathbb{Z})^8 \rtimes S_8$$

$$\left((\mathbb{Z}/3\mathbb{Z})^8 \rtimes S_8\right) \times \left((\mathbb{Z}/2\mathbb{Z})^{12} \rtimes S_{12}\right)$$

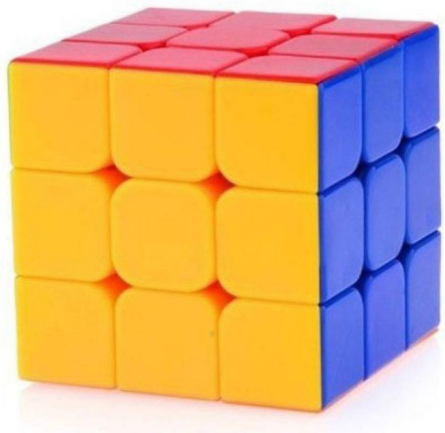
$$= \left((\mathbb{Z}/3\mathbb{Z})^8 \rtimes S_8 \right) \times \left((\mathbb{Z}/2\mathbb{Z})^{12} \rtimes S_{12} \right)$$



$$\varphi : \left((\mathbb{Z}/3\mathbb{Z})^8 \rtimes S_8\right) \times \left((\mathbb{Z}/2\mathbb{Z})^{12} \rtimes S_{12}\right) \to \mathbb{Z}/2\mathbb{Z} \times \mathbb{Z}/3\mathbb{Z} \times \mathbb{Z}/2\mathbb{Z}$$
$$(\mathbf{v}, \sigma, \mathbf{w}, \tau) \mapsto \left(\sum v_i, \sum w_j, \operatorname{sgn}(\sigma)\operatorname{sgn}(\tau)\right)$$

$$\varphi : \Big((\mathbb{Z}/3\mathbb{Z})^8 \rtimes S_8\Big) \times \Big((\mathbb{Z}/2\mathbb{Z})^{12} \rtimes S_{12}\Big) \to \mathbb{Z}/2\mathbb{Z} \times \mathbb{Z}/3\mathbb{Z} \times \mathbb{Z}/2\mathbb{Z}$$

$$(\mathbf{v}, \sigma, \mathbf{w}, \tau) \mapsto \Big(\sum v_i, \sum w_j, \mathsf{sgn}(\sigma)\,\mathsf{sgn}(\tau)\Big)$$



$$= \ker(\varphi)$$