

## 1.77: Order

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If  $G$  is a group consisting of a finite number of elements, this number of elements is the **order** of  $G$ . For example, the point group  $m\bar{3}m$  has order 48.

For an element  $g$  of a (not necessarily finite) group  $G$ , the **order** of  $g$  is the smallest integer  $n$  such that  $g^n$  is the identity element of  $G$ . If no such integer exists,  $g$  is of **infinite order**. For example, the rotoinversion  $\bar{3}$  has order 6 and a translation has infinite order. An element of order 2 is called an **involution**.

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