

## 6 Integral Powers of an Element

If  $a \in G$  and  $n$  is an integer, we define powers as:

- $a^0 = e$
- $a^n = a * a * \cdots * a$  ( $n$  times, for  $n > 0$ )
- $a^{-n} = (a^{-1})^n$  (for  $n > 0$ )

Properties of exponents hold in groups:

$$a^m * a^n = a^{m+n}, \quad (a^m)^n = a^{mn}$$