

## Reading Quiz Section 4 & 9

Key

Provide an example of:

- 1) [2] a group with an element of finite order

$(\mathbb{Z}/n\mathbb{Z})$  or  $(\mathbb{Z}/n, +)$  has  $n$  elements in particular  $\{0, 1, \dots, n-1\}$   
 $D_4$  or symmetries of the square under composition  
there are only 3 elements  
rotation by  $90^\circ$  has order 4.

- 2) [2] a cyclic group

$\mathbb{Z} = \langle 1 \rangle$  under addition

$\mathbb{Z}_4$  or  $\mathbb{Z}/4$  =  $\langle 1 \rangle$  under modular addition

- 3) [1] an equivalence relation.

triangles are equivalent if they are congruent

triangles are equivalent if they are similar

integers are equivalent if they are equal modulo 3

or