

Homework 1 Answers

Answers

1. What is

a) $4 + 4 = 1 \pmod{7}$

b) $3 \times 5 = 1 \pmod{7}$

c) what is the inverse of 3 ?

Using $a^{-1} \equiv a^{p-2} \pmod{p}$

$$= 3^{7-2} = 3^5 = 243$$

$$= 5 \pmod{7}$$

2. For $S = \{0,1,2,3,4,5,6\}$

Can we consider 'S' and the operation '+' a group ?

- *yes it follows all of the group properties*

3. $-13 \pmod{5}$

$$= 2 \pmod{5}.$$

4. $x = 2$ is a root

degree is 3