Assignment 2

MA08 Applied Algebra Deadline 05:00 PM, Friday, 20190621

$\circ$	a	b	c	d	e
a	a	b	c	b	d
b	b	c	a	e	c
c	c	a	b	b	a
d	b	e	b	e	d
e	d	b	a	d	c

Table 1

$\circ$	a	b	c	d
a	a	b	c	
b	b	d		c
c	c	a	d	b
d	d			a

Table 2

1. For a binary operation $\circ$ defined on $S = \{a, b, c, d, e\}$ by means of Table 1.
   (a) Compute $b \circ d$, $c \circ c$.
   (b) Compute $(a \circ b) \circ c$, $a \circ (b \circ c)$. Based on this computation, can you say $\circ$ is associative?
   (c) Compute $(b \circ d) \circ c$, $b \circ (d \circ c)$. Based on this computation, can you say $\circ$ is associative?
   (d) Is $\circ$ commutative? Why?
2. Complete Table 2 so as to define a commutative binary operation $\circ$ on $S = \{a, b, c, d\}$.
3. Compute the indicated product involving the following permutations according to Table 2.2 and Figure 2.3 in page 23 of slides of Lecture 2.
   (a) $\rho_2\mu_3$
   (b) $\mu_3\rho_2$

   Notice: Please write Your Name and Student ID when you submit.