7.04 List the elements of the subgroup generated by the given subset: $\{12, 30\}$ of $\mathbb{Z}_{12}$
As the gcd(12,30) = 6, notice all elements are multiples of the gcd. 0,6,12,18,24,30

7.05 List the elements of the subgroup generated by the given subset: $\{12, 42\}$ of $\mathbb{Z}$
$\cdots, -12 - 6, 0, 6, 12, \cdots$

7.06 List the elements of the subgroup generated by the given subset: $\{18, 24, 39\}$ of $\mathbb{Z}$
$\cdots, -6, -3, 0, 3, 6, \cdots$

7.07 Compute these products using Fig. 7.11(b).

(a) $(a^2b)a^3$. Just follow three arcs of a ending up at a^3b

(b) $(ab)(a^3b)$. Just follow three arcs of a and one arc of b ending up at a^2

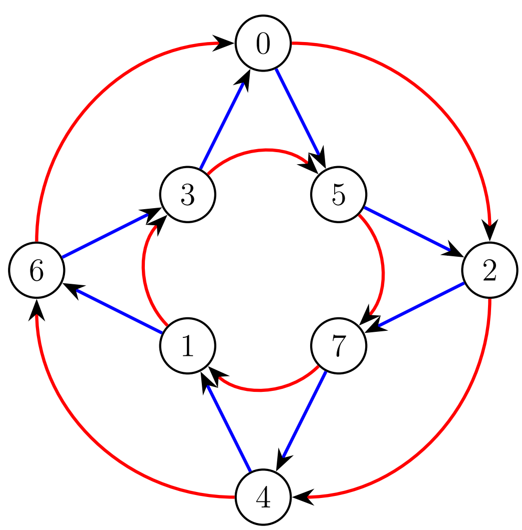
(c) $b(a^2b)$. Just follow two arcs of a and one arc of b ending up at a^2

7.10 Table for diagraph in Fig. 7.13(c)

	e	a	b	c	d	f
e	e	a	b	c	d	f
a	a	c	f	e	b	d
b	b	d	e	f	a	c
c	c	e	d	a	f	b
d	d	f	c	b	e	a
f	f	b	a	d	c	e

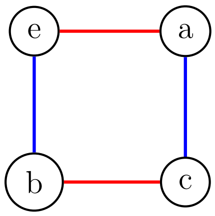
7.12 Determine whether or not the group corresponding to the Cayley diagraph in Fig. 7.11(b) is commutative.
Not commutative as a followed by b gives ab, while b followed by a gives a^3b

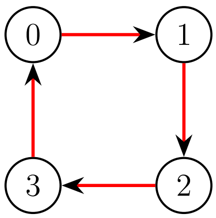
7.16 Draw a Cayley digraph for $\mathbb{Z}_8$ taking as generating set $S = \{2, 5\}$



Red = 2, Blue = 5

7.18 Draw digraphs for the two possible structurally different groups of order 4.





8.02

8.04

8.08

8.12

8.18

8.20

8.28

8.29

8.36

8.38

8.46

8.48

8.50