$\boxed{\langle 5 \rangle, \cdot \bmod 13:}$

$\cdot \bmod 13$	1	5	12	8
1	5^0	5^1	5^2	5^3
5	5^1	5^2	5^3	5^0
12	5^2	5^3	5^0	5^1
8	5^3	5^0	5^1	5^2

$\boxed{\mathbb{Z}_4:}$

$+ \bmod 4$	0	1	2	3
0	0	1	2	3
1	1	2	3	0
2	2	3	0	1
3	3	0	1	2

$\boxed{< R_{90} >:}$

$\circ$	R_0	R_{90}	R_{180}	R_{270}
R_0	$(R_{90})^0$	$(R_{90})^1$	$(R_{90})^2$	$(R_{90})^3$
R_{90}	$(R_{90})^1$	$(R_{90})^2$	$(R_{90})^3$	$(R_{90})^0$
R_{180}	$(R_{90})^2$	$(R_{90})^3$	$(R_{90})^0$	$(R_{90})^1$
R_{270}	$(R_{90})^3$	$(R_{90})^0$	$(R_{90})^1$	$(R_{90})^2$

$\boxed{< a >, \text{ where } a^4 = 0}$

$*$	e	a	a^2	a^3
e	a^0	a^1	a^2	a^3
a	a^1	a^2	a^3	a^0
a^2	a^2	a^3	a^0	a^1
a^3	a^3	a^0	a^1	a^2

September 24, 2004

1. Suppose that $\langle a \rangle$ is a cyclic group of order 6. Find all generators of $\langle a \rangle$.

2. Find all generators of $\mathbb{Z}_6$.

3. The Cayley table for $U(14)$ is shown below.

$\boxed{\text{U(14):}}$

$\cdot$ mod 14	1	3	5	9	11	13
1	1	3	5	9	11	13
3	3	9	1	13	5	11
5	5	1	11	3	13	9
9	9	13	3	11	1	5
11	11	5	13	1	9	3
13	13	11	9	5	3	1

We saw on Wednesday that $U(14) =< 3 >$. Find all generators of $U(14)$.