Section 10 – Problem #19. (page 102)

1. Every subgroup of every group has left cosets.

True.

2.The number of left cosets of a subgroup of a finite group divides the order of the group.

True.

3. Every group of prime order is abelian (and cyclic).

True.

4. One **can** have left cosets of a finite subgroup of an infinite group.

True.

5. A subgroup of a group is a left coset of itself.

True.

6. Subgroups of finite groups **are not** the only subgroups that can have left cosets.

True. I guess you could take a left coset of any subset.

7. A_n is of index 2 in S_n for $n > 1$.

True.

8. There are finite groups that contain an element of every order that divides the order of the group.

True. Consider Z_p, where p is prime.

9. Every finite cyclic group contains an element of every order that divides the order of the group.

True. Let a=n/m. Then a has order m in Z_n.