Exercises from Fraleigh:

Section 4, exercises 32, 33, 37.

Section 5, exercises 22, 23, 24, 33, 34, 42 (see instructions above ex. 41), 51, 54.

Section 6, exercises 18 (also list the elements!), 22, 29.

Additional Exercises (also required):

Exercise A2.1: Let $(G, \cdot)$ be a group, and let $a, x \in G$. Show that the orders of x and axa^{-1} are equal.

Exercise A2.2: Let $G = (\mathbf{Z}_3 \times \mathbf{Z}_4, +)$ with the operation defined somewhat like vector addition: for $a, a' \in \mathbf{Z}_3$ and $b, b' \in \mathbf{Z}_4$,

$$(a, b) + (a', b') = (a +_3 a', b +_4 b'). \qquad \text{For example, } (2, 2) + (1, 3) = (0, 1).$$

Show that G is cyclic.

Note: Before doing this problem, convince yourself (without handing in the details) that G is indeed a group and that $|G| = 12$.

Look at, but do not hand in:

Section 4, exercises 19, 23, 25, 29, 30, 31, 35, 36, 41.

Section 5, exercises 1–7, 25, 26, 29, 30, 31, 41, 43, 44, 47, 52.

Section 6, exercises 1–7, 46, 47.