37.3 Solve the following equations for $[x]$ in the Z/nZ specified. Note: These are quite different from the previous set of problems. Why? Be sure you find all solutions.
   a. $[2][x] = [4]$ in $Z/10Z$.
   b. $[2][x] = [3]$ in $Z/10Z$.
   c. $[9][x] = [4]$ in $Z/12Z$.
   d. $[9][x] = [6]$ in $Z/12Z$.

37.4 Here are a few more equations for you to solve in the Zn specified. Be sure to find all solutions.
a. $[x][x] = [1]$ in $Z/13Z$.
b. $[x][x] = [11]$ in $Z/13Z$.
c. $[x][x] = [12]$ in $Z/13Z$.
d. $[x][x] = [4]$ in $Z/15Z$.
e. $[x][x] = [10]$ in $Z/15Z$.
f. $[x][x] = [14]$ in $Z/15Z$.

37.10 For ordinary integers, the following is true. If $ab = 0$, then $a = 0$ or $b = 0$. The analogous statement for Z/nZ is not necessarily true. For example, in $Z/10Z$, $[2][5] = [0]$ but $[2] \neq [0]$ and $[5] \neq [0]$. However, for some values of n (e.g., $n = 5$) it is true that $[a][b] = 0$ implies $[a] = 0$ or $[b] = 0$.

For which values of $n \geq 2$ does the implication

$$[a][b] = 0 \iff [a] = [0] \text{ or } [b] = [0]$$

hold in Z/Zn? Prove your answer.

37.12 Let n be a positive integer and suppose $[a], [b] \in Z/nZ$ are both invertible. Prove or disprove each of the following statements.

    a. $[a] + [b]$ is invertible.

    b. $[a] - [b]$ is invertible.

    c. $[a][b]$ is invertible.

    d. $[a]/[b]$ isinvertible.