1. Write a function `leastSigDigs` that takes a list of ints and returns a list of the least significant digits in those lists. For example, `leastSigDigs([283, 7234, 5, 2380])` would return `[3, 4, 5, 0]`.

   ```plaintext
   fun leastSigDigs([]) = []
   | leastSigDigs(x::rest) = (x mod 10)::leastSigDigs(rest);
   ```

2. Write a function `hasEmpty` that takes a list of lists (of any type) and determines whether or not the list of lists contains an empty list. For example, `hasEmpty([[1,2,3], [4,5], [], [6,7]])` would return `true`.

   ```plaintext
   fun hasEmpty([]) = false
   | hasEmpty([]::rest) = true
   | hasEmpty(x::rest) = hasEmpty(rest);
   ```

3. Use quantified syllogisms (and, possible, common syllogisms and logical equivalences) to verify the following argument form. (Note that $x \notin A$ is the same thing as $\sim (x \in A)$.) (11 points.)

   a. $\forall x \in A, P(x) \lor Q(x)$

   b. $\forall x \in A, P(x) \rightarrow R(x)$

   c. $\forall x \in A, Q(x) \rightarrow x \in B$

   d. $\forall x \in B, x \notin A \lor R(x)$

   e. $\therefore \forall x \in A, R(x)$

   Suppose $a \in A$

   (i) $P(a) \lor Q(a)$ \hspace{1cm} By supposition, (a), and UI

   Suppose $P(a)$

   (ii) $R(a)$ \hspace{1cm} By supposition, (b), and UMP

   Suppose $Q(a)$

   (iii) $x \in B$ \hspace{1cm} By supposition, (c), and UMP

   (iv) $R(a)$ \hspace{1cm} By supposition, (iii), and elimination

   (v) $R(a)$ \hspace{1cm} By (ii), (iv), supposition, and HDC

   (vi) $\therefore \forall x \in A, R(x)$