1 Problem

It can be seen that the number, 125874, and its double, 251748, contain exactly the same digits, but in a different order.

Find the smallest positive integer, x, such that $2x$, $3x$, $4x$, $5x$, and $6x$, contain the same digits.

2 Solution

```
import Data.List
import qualified Data.Map as Map
import Data.Maybe
import System.Environment

checkMultiples :: (Integral a) => a -> Bool
checkMultiples x = and $ map (\z -> x' == z) zs
  where x' = sort $ show x
        zs' = map (x*) [2..6]
        zs  = map (sort . show) zs'

main = do
  let soln = head $ filter checkMultiples [1..]
  putStrLn $ "The smallest integer is " ++ show soln ++ "."
```

3 Result

```
runhaskell problem52.lhs
The smallest integer is 142857.
```