

## Question 5

This script applies the Chinese Remainder Theorem to determine a value from a set of integer division remainders.

```
In [ ]: # Define the known integer division results
c5_3 = lambda k: 5 * k + 3
c6_3 = lambda k: 6 * k + 3
c7_1 = lambda k: 7 * k + 1
c11_0 = lambda k: 11 * k

set_5 = set(); set_6 = set(); set_7 = set(); set_11 = set()

k = 0
while len(set_5 & set_6 & set_7 & set_11) == 0:
    k += 1
    set_5.add(c5_3(k))
    set_6.add(c6_3(k))
    set_7.add(c7_1(k))
    set_11.add(c11_0(k))

print(set_5 & set_6 & set_7 & set_11)
```