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Assignment 2 (COMP 251)

Question 4.1:

A non-canonical system is $c = (1, 7, 11)$, where by counter example the integer $x = 14$. According to the greedy solution, the solution $GRD_c(14) = (3, 0, 1)$. While the optimal solution is $OPT_c(14) = (0, 2, 0)$.

Question 4.3:

1- check if subset $<1, 2, 5>$ is canonical:
the subset $c = <c_1, c_2, c_3>$ if $0 \leq r < c_2 - q$ where $c_3 = qc_2 + r$ and $r \in [0, \frac{c_2}{2} - 1]$

since the subset is canonical and the remaining subset $<200, 100, 50, 20, 10>$ are multiples of base 5, then by proof in question 4.2 (theorem of expansion...) the system c is canonical.