

SOLUTIONS: PROBLEM SET 10 FROM SECTION 4.3

6. $x \equiv 326741466757708 \pmod{1014060069938916}$

8. $100000 \equiv 5 \pmod{7}$. $49335 \equiv 6 \pmod{7}$. Consequently, the three possible values under consideration have respective least residues, 6, 4 and 2 $\pmod{7}$ and so can be distinguished by the special counter.

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22. The system of equations that is implied by this problem is

$$x \equiv 3 \pmod{17}$$

$$x \equiv 10 \pmod{16}$$

$$x \equiv 0 \pmod{15}$$

The smallest positive solution is $x = 3930$.