(1) Express the negations of each of these statements so that all negation symbols immediately precede predicates:
   (a) $\forall x \exists y \forall z \ T(x, y, z)$
   (b) $\forall x \exists y \ P(x, y) \lor \forall x \exists y \ Q(x, y)$
   (c) $\forall x \exists y \ (P(x, y) \land \exists z \ R(x, y, z))$
   (d) $\forall x \exists y \ (P(x, y) \implies Q(x, y))$

(2) Determine an integer $n$ such that $n \equiv 1 \pmod{7}$, $n \equiv 3 \pmod{8}$ and $n \equiv 2 \pmod{9}$.

(3) Which amounts of postage can be formed using only 5-cent and 6-cent stamps? Formulate a conjecture and prove it.

(4) Compute the following remainders:
   (a) $19^{145} \pmod{13}$
   (b) $(-12)^{36} \cdot 50^{19} \pmod{7}$

(5) Give an example of two uncountable sets $A$ and $B$ such that the intersection $A \cap B$ is
   (a) finite,
   (b) countably infinite,
   (c) uncountable.