1. Chicken McNuggets originally came in boxes of 6, 9, or 20 McNuggets.
   A McNugget number is a positive integer that can be obtained by adding together orders of Chicken McNuggets, prior to consuming any.
   (a) Prove that the following are McNugget numbers:

$$15, 35, 41, 42, 44, 45, 46, 47, 48, 49$$

   (b) Prove that 43 is not a McNugget number
   Hint: Notice that 43 is odd

   (c) Prove that every integer $n \geq 44$ is a McNugget number
   Hint: Strong Induction

2. Write each of the following in set-builder notation:
   (a) The set of integers that are multiples of 3
   (b) The set of rational numbers whose square is less than 2

3. Let $A = \{n \in \mathbb{Z} \mid n = 2k \text{ for some } k \in \mathbb{Z}\}$ and
   $B = \{m \in \mathbb{Z} \mid m = 4j \text{ for some } j \in \mathbb{Z}\}$.
   Prove $B \subseteq A$. Is $B \subset A$?

4. Let $A = \{a, b, c\}$ and $B = \{a, c, d, e\}$ with universal set $U = \{a, b, c, d, e, f\}$.
   Find each of the following:

(a)	$A \cup B$	(d)	$B - A$	(g)	$A^c \cup B^c$
(b)	$A \cap B$	(e)	A^c	(h)	$(A \cap B)^c$
(c)	$A - B$	(f)	$A \times B$	(i)	$P(A)$