6/26 Quiz Prep

$A \setminus B = \{x \in A : x \notin B\}$
$(A - B)$

Set containment Proofs
Ex 1: $(A \setminus B) \cup (C \setminus B) = (A \cup C) \setminus B$
1st proof $(A \setminus B) \cup (C \setminus B) \subseteq (A \cup C) \setminus B$
Let $x \in (A \setminus B) \cup (C \setminus B)$
if $A \setminus B$, $x \in A$ $x \notin B$ $A \subseteq A \cup C$ $x \in A \cup C$ $x \notin B$
if $C \setminus B$, $x \in C$ $x \notin B$ $C \subseteq A \cup C$ $x \in A \cup C$ $x \notin B$
$\therefore (A \setminus B) \cup (C \setminus B) \subseteq (A \cup C) \setminus B$

Universal Quantifier
$\forall$ for all, every, each
Existential quantifier
$\exists$ there exists, for some, for one

Examples
Definition of continuity
. For all $\varepsilon > 0$, there exists $\delta_\varepsilon > 0$ such that, for all $x, c \in \mathbb{R}$ with c fixed, if $|x - c| < \delta$, then $|f(x) - f(c)| < \varepsilon$

odd & even integers.
add An integer n is odd if there exists some integer k such that $n = 2k + 1$

$f(x) = x^2 - 4x + 4$
$(x-2)^2$
$(x-2)^2 \geq 0$
$x^2 - 2x + 2$
$\frac{+2 \pm \sqrt{4-8}}{2}$
$\frac{\pm \sqrt{-4}}{2}$ $\frac{2 \pm 2i}{2}$
$\frac{1+i}{1} = 1+i$