

MATH 6
HANDOUT 7: SETS AND SUBSETS. MORE NOTATION.

HOMEWORK

1. Let $A = \{1, 2, 3\}$. Find all the subsets of A . Do not forget the empty set \emptyset and set A itself.
2. Let
 - A =set of all people who know French
 - B =set of all people who know German
 - C =set of all people who know RussianUse the set notation to denote the following sets:
 - (a) Set of people who don't know Russian but know at least French or German.
 - (b) Set of people who know French and Russian but not German.
 - (c) Set of people who know all three languages.
 - (d) Set of people who don't know any of these languages.
 - (e) Set of people who speak at least two languages.
3. Draw the following sets on the number line and describe in the interval notation:
 - (a) Set of all numbers x satisfying $x \leq 3$ and $x > -10$;
 - (b) Set of all numbers x satisfying $x \leq 3$ or $x < -10$
 - (c) Set of all numbers x satisfying $x < -10$ or $x > 2$
 - (d) Set of all numbers x satisfying $x > -10$ and $x \leq 2$
4. Find sets A, B, C if you know that $A \cup B = \{1, 3, 4, 5, 7\}$, $B \cup C = \{1, 2, 4, 5, 6, 8, 9\}$, $(A \cup B) \cap C = \emptyset$, $(B \cup C) \cap A = \{1, 5\}$.
5. Find A if you know that $A \cup \{5, 7\} = \{3, 5, 7, 8\}$, $A \cap \{1, 2, 5, 7\} = \{5, 7\}$.
6. A local frog named Filo running for parliament tells the public, at the famous amphibian debate convention, that Filo will speak for all frogs who do not speak for themselves, and Filo will speak for no one else. Can you logically deduce if Filo will speak for Filo's own self?