

### Lab questions

1. Find the indicated set if  $S = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$  and the following are subsets of  $S$

$$A = \{1, 2, 3, 4, 5, 6, 7\} \quad B = \{2, 4, 6, 8\} \quad C = \{7, 8, 9, 10\}$$

- |                |                       |                             |
|----------------|-----------------------|-----------------------------|
| (a) $A \cup B$ | (d) $A \cup C$        | (h) $A \cup (B \cap C)$     |
| (b) $A \cap B$ | (e) $A \cap C$        | (i) $(B^c \cap C)$          |
| (c) $B \cup C$ | (f) $A \cup B \cup C$ | (j) $A^c \cup (B^c \cap C)$ |
| (d) $B \cap C$ | (g) $A \cap B \cap C$ | (k) $A^c \cap (B^c \cup C)$ |

2. Let

$$A = \{1, 2, 3, 4, 5\}$$

$$B = \{x : x = 2k \text{ for some } k \in \mathbb{N}\}$$

$$C = \{x \in \mathbb{N} : x < 6\}$$

Which of the following statements are true?

- |                               |                                  |
|-------------------------------|----------------------------------|
| (a) $\{4, 3, 2\} \subseteq A$ | (b) $3 \in B$                    |
| (c) $A \subseteq C$           | (d) $\{2\} \in A$                |
| (e) $C \subseteq B$           | (f) $\{2, 4, 6, 8\} \subseteq B$ |
| (g) $C \subseteq A$           | (h) $A = C$                      |

3. Express the interval in set builder form and graph

- (a)  $(-3, 0)$  (b)  $(2, 8]$  (c)  $[-6, -1/2)$  (d)  $[2, \infty]$  (e)  $(-\infty, 1)$

4. Find the interval and write in set builder form

- |                           |                            |
|---------------------------|----------------------------|
| (a) $(3, 5] \cap [2, 6)$  | (b) $(-2, 1) \cup [0, 2]$  |
| (c) $[2, 4] \cap (1, 5)$  | (d) $(-3, 2) \cap [2, 4]$  |
| (e) $[-1, 2] \cup (3, 5)$ | (f) $(-2, 0) \cap [-3, 1)$ |

Do questions 1.1-1.20 in text