

HOMEWORK #2

**Due date: begining of class Friday, February 8.**

**Problem 1.**

*Let  $ax^2+bx+c = 0$  where  $a, b, c \in \mathbb{R}$ . Derive the quadratic formula (the recommended approach is to complete the square; but you may derive the formula by any appropriate method).*

**Problem 2.**

*Do exercise 1.3 in the text. Justify your answer (i.e. give a proof or explain why your technique gives a maximum).*

**Problem 3.**

*Do exercise 1.4 in the text. Justify your answer (i.e. give a proof or explain why your technique gives a maximum).*

**Problem 4.**

*Do exercise 1.8 in the text.*

**Problem 5.**

*Do exercise 1.27 in the text.*

**Problem 6.**

*Do exercise 1.28 in the text.*

**Problem 7.**

*Do exercise 1.36 in the text.*

**Problem 8.**

*Let  $A$  and  $B$  be sets. Prove both*

- (1)  $\overline{A \cup B} = \overline{A} \cap \overline{B}$  and
- (2)  $\overline{A \cap B} = \overline{A} \cup \overline{B}$ .