Semester Test 1 – Chapter 1

- *Each student will get 1 random question from each pool with random order in options.*
- *Correct answers are highlighted in yellow.*

Pool A **(1 Mark)**

Instructions:
You can select one or more answers. Note you must get the complete right combination to get your marks, no partial marks.

Questions:

1. The set $(-1,1)$ will **NOT** have a

   A. Lower Bound
   B. Maximum
   C. Infimum

2. The set $(-\infty, 2]$ will **NOT** have a

   A. Lower Bound
   B. Maximum
   C. Infimum

3. The set $[0, \infty)$ will **NOT** have a

   A. Lower Bound
   B. Maximum
   C. Infimum

4. The set $(-\infty, 0)$ will **NOT** have a

   A. Lower Bound
   B. Maximum
   C. Infimum

5. The set $(-4, \infty)$ will **NOT** have a

   A. Lower Bound
   B. Maximum
   C. Infimum

6. The set $[-2,2)$ will **NOT** have a

   A. Lower Bound
   B. Maximum
   C. Infimum

Pool B **(1 Mark)**

Instructions:

You can select one or more answers. Note you must get the complete right combination to get your marks, no partial marks.

Questions:

1. The set $(-1,1)$ will **NOT** have a

   A. Upper Bound
   B. Minimum
   C. Supremum

2. The set $(-\infty, 2]$ will **NOT** have a

   A. Upper Bound
   B. Minimum
   C. Supremum

3. The set $(0,2)$ will **NOT** have a

   A. Upper Bound
   B. Minimum
   C. Supremum

4. The set $(-\infty, 0)$ will **NOT** have a

   A. Upper Bound
   B. Minimum
   C. Supremum

5. The set $[-4, \infty)$ will **NOT** have a

   A. Upper Bound
   B. Minimum
   C. Supremum

6. The set $(1, \infty)$ will **NOT** have a

   A. Upper Bound
   B. Minimum
   C. Supremum

Pool C **(3 Marks)**

Instructions:
You can select one or more answers. Note you must get the complete right combination to get your marks, no partial marks.

Questions:
Which statement(s) is/are **FALSE**?

1.
   A. If a set S has a supremum, then it will have a maximum.
   B. If a set S has a minimum, then it will have an infimum.
   C. For all $a, b \in \mathbb{R}\backslash 0$, ab^{-1} will always be a rational number.
   D. For all $a, b, c \in \mathbb{R}\backslash 0$, $a \div (b + c) = (a \div b) + (a \div c)$.
2.
   A. If a set S has a maximum, then it will have a supremum.
   B. If a set S has a infimum, then it will have a minimum.
   C. For all $a, b \in \mathbb{R}\backslash 0$, ab^{-1} will always be a rational number.
   D. For all $a, b, c \in \mathbb{R}\backslash 0$, $a \div (b + c) = (a \div b) + (a \div c)$.
3.
   A. If a set S has a maximum, then it will have a supremum.
   B. If a set S has a minimum, then it will have an infimum.
   C. For all $a, b \in \mathbb{R}$, ab^{-1} will always be a rational number.
   D. For all $a, b, c \in \mathbb{R}\backslash 0$, $a \div (b + c) = (a \div b) + (a \div c)$.
4.
   A. If a set S has a supremum, then it will have a maximum.
   B. If a set S has a infimum, then it will have a minimum.
   C. For all $a, b \in \mathbb{R}\backslash 0$, ab^{-1} will always be a rational number.
   D. For all $a, b, c \in \mathbb{R}$, $a + (b \times c) \neq (a + b) \times (a + c)$.
5.
   A. If a set S has a maximum, then it will have a supremum.
   B. If a set S has a infimum, then it will have a minimum.
   C. For all $a, b \in \mathbb{R}$, ab^{-1} will always be a rational number.
   D. For all $a, b, c \in \mathbb{R}$, $a + (b \times c) \neq (a + b) \times (a + c)$.

6.
   A. If a set S has a supremum, then it will have a maximum.
   B. If a set S has a minimum, then it will have an infimum.
   C. For all $a, b \in \mathbb{R}$, ab^{-1} will always be a rational number.
   D. For all $a, b, c \in \mathbb{R}$, $a + (b \times c) \neq (a + b) \times (a + c)$.