First Name and Last Name : Group:

Calculus 1 **M and MI** **Quiz (on the real line)** **2023/2024**

Answer with "true" or "false". In the "false" case, give a counter example or an explanation.

1) In $\mathbb{R}$, if *A* is upper bounded, then *Max A* exists.

1)

2) In $\mathbb{R}$, if *A* is upper bounded, and B is lower bounded then (A+B) is bounded.

2)

3) In $\mathbb{R}$, if Sup A exists et Max B exists then Sup(AUB) exists.

3)

4) Sup $(\mathbb{R}/\mathbb{N})$exists in $\mathbb{R}$.

4)

5) if Sup D exists, then Sup D= Max D and both exist.

5)

6) Max $(\mathbb{Z}/\mathbb{N})$does not exist.

6)

7-1) Let E= $\{(-1)^m + (-1)^n : n, m \in IN\}$

Sup E exists and Max E does not exist.

7-1)

7-2)

7-2) Min E exists and Inf E does not exist.

8-1) Let be C= $\left\{(-1)^n \cdot \frac{(n+1)}{(n+2)} : n \in IN\right\}$ then Sup C = 1

8-1)

8-2) Inf. C = -1

8-2)