

Additional Equicontinuous Problems (part of HW#2)

1. If $X \subset C[a, b]$ is uniformly bounded collection with the property that $f \in X$ implies $f'(t)$ exists and

$$\sup\{|g'(t)| : t \in [a, b], g \in X\} = M < \infty$$

then X is relatively compact.

2. If X and Y are equicontinuous subsets of $C[a, b]$ then the following subsets are also equicontinuous:

(a) $X \cup Y$

(b) closure X

(c) $X + Y = \{f + g : f \in X, g \in Y\}$

3. Give an example of an equicontinuous set in $C[a, b]$ that is not relatively compact.