CAAM 499 HW 6. DUE BY IN-CLASS WEDNESDAY 11/8

Textbook exercises in chapter 6:

Exercise 1 (Hint: The easiest way is to start by assuming $x \notin \text{supp } \phi$ and showing that $x \notin \text{supp } \phi'$. For the second part, what happens if ϕ is constant on some small set?)

Exercise 2 (Hint: Same strategy as in the previous exercise. Remember that T is not a function!)

Exercise 3 (T is not a function!)

Exercise 5 (just do the first part of the question and ignore the book's hint)

Exercise 8 (Hint: You can do this by thinking of distributions given by a function T_f)

Exercise 16 (This is an important question that we will use later in the course. Hint: Notice $\phi(x) = f(\frac{1}{f}\phi)$. Normally, ϕ/f might not make sense when f vanishes, but it does make sense (in fact, a smooth function) when ϕ has support lying inside the set $\{y : f(y) \neq 0\}$. Also use that for a continuous function f, if $f(x) \neq 0$, then $f \neq 0$ on some neighborhood B_x of x.)