

Homework #4

Problem 1 - 1.11.4:

In class we saw that

$$\delta(g(x)) = \sum_i \frac{\delta(x - x_i)}{|g'(x_i)|}, \quad (1)$$

where x_i are the zeroes of $g(x)$. Then, in this case $g(x) = a(x - x_1)$ which has a zero at $x = x_1$ and $g'(x = x_1) = a$; then, replacing in Eq.(1) we obtain:

$$\delta(a(x - x_1)) = \frac{\delta(x - x_1)}{|a|}. \quad (2)$$