Homework

Set 2

1. Show that $\delta^{(k)}$ are linearily independent, i.e. if $\sum_{k=0}^{N} c_k \delta^{(k)} = 0$, then all $c_k = 0$.

2. Determine all distributions on $\mathbb{R}$ such that
$$(x - 1)(xu)' = \delta .$$

3. Compute the (distributional) derivative of fp $\dfrac{1}{x^3}$.

   Is it homogeneous?