Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

- 1. [6 points] Consider the function $f(t) = d_{1/3}(t)$ (that is, $d_{\tau}(t)$, with $\tau = \frac{1}{3}$).
 - (a) Make a sketch of the graph.

(b) Compute from scratch its Laplace transform.

2. [6 points] Solve the initial value problem

$$y'' + 6y' + 13y = \delta(t - 7), \quad y(0) = 1, \quad y'(0) = 0.$$