Problem Set # 1

1. Compute the GCD of
$$4x^4 + 13x^3 + 15x^2 + 7x + 1$$

   and
$$2x^3 + x^2 - 4x - 3$$

2. Solve:

$$s(4x^4 + 13x^3 + 15x^2 + 7x + 1) + t(2x^3 + x^2 - 4x - 3) = x^3 + 5x^2 + 7x + 3$$

   for $s, t \in \mathbf{Q}[x]$ satisfying minimal degree bounds.