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

1. Use the by-parts method to evaluate the integral $\int xe^{-10x}\,\mathrm{d}x$.

2. Use the by-parts method to evaluate the integral $\int (x+7)(2x+3)^5\,\mathrm{d}x$.