

Math 102 — Integration by parts

Problem. Find the following definite integrals using integration by parts. Remember the LIATE mnemonic.

a. $\int x \sin x \, dx$

b. $\int x e^{5x} \, dx$

c. $\int x^5 \ln x \, dx$

d. $\int x^2 e^x \, dx$

e. $\int 2x^3 e^{x^2} \, dx$ *Hint: try doing a substitution first. Use the letter y instead of u when doing your substitution.*