Math 101 – WORKSHEET 10 INTEGRATION BY PARTS

(1) Evaluate the following integals: (a) $\int x^2 \cos x \, dx$

(b) $\int \log x \, \mathrm{d}x$

(c) (Final, 2013) $\int_0^1 \arctan x \, \mathrm{d}x =$

Date: 25/1/2017, Worksheet by Lior Silberman. This instructional material is excluded from the terms of UBC Policy 81.

(2) Now let's play with our toolkit (a) Evaluate $\int \frac{\log x}{x} dx$

(b) (Quiz 2015) Evaluate $\int \frac{\log x}{x^3} dx$

(c) (Final, 2010) Let $g(x) = \int_0^1 (xe^t - t)^2 dt$. Find the minimum value of g(x).

(d) Evaluate $\int x^3 \log(x^2 + 1) dx$