

Math 1B Discussion Problems 29 Jan

1. Evaluate the following integrals.

(a) $\int x \cos x dx$

(b) $\int x \ln x dx$

(c) $\int_0^1 x^2 e^{2x} dx$

(d) $\int_1^e x(\ln x)^2 dx$

(e) $\int_1^4 e^{\sqrt{x}} dx$

(f) $\int \sin(\ln x) dx$

(g) $\int_0^{\pi/2} e^{-x} \sin x dx$

(h) $\int \sin(3x) \cos(2x) dx$

2. * Show that $\int_a^b f^{-1}(x) dx = bf^{-1}(b) - af^{-1}(a) - \int_{f^{-1}(a)}^{f^{-1}(b)} f(u) du$