

MATH 104 TUTORIAL 7

1. Evaluate the integrals in exercises using integration by parts.

a. $\int x^2 \sin x \, dx$

b. $\int x^2 e^{-x} \, dx$

c. $\int \tan^{-1} y \, dy$

d. $\int (r^2 + r + 1)e^r \, dr$

e. $\int e^{-y} \cos y \, dy$

f. $\int z(\ln z)^2 \, dz$

g. $\int x^5 e^{x^3} \, dx$

h. $\int \sin 2x \cos 4x \, dx$

2. Evaluate the integrals

a. $\int \sin^3 x \, dx$

b. $\int \sin^3 x \cos^3 x \, dx$

c. $\int \sec^2 x \tan x \, dx$

d. $\int_0^{\pi/2} \sin^2 x \, dx$