

1. Evaluate the following:

a. (9 pts) $\int x^2 \cos x dx$

b. (9 pts) $\int x \arccos x dx$

c. (9 pts) $\int e^x \sin x dx$

d. (9 pts) $\int \sin(2x) \cos(3x) dx$

e. (9 pts) $\int \tan^4 x dx$

f. (9 pts) $\int_0^{\pi/8} \cos^2 x \tan^2 x dx$

g. (9 pts) $\int_0^1 \frac{xdx}{\sqrt{x^2 + 4x + 3}}$. (Hint: Complete the square, make a substitution.)

h. (9 pts) $\int \frac{x-3}{x^2-5x+4} dx$

i. (9 pts) $\int x \sqrt[3]{x+5} dx$ (Hint: Let $u = \sqrt[3]{x+5}$)

j. (9 pts) $\int_4^{\infty} \frac{dx}{x^{3/4} - x^{1/2} - 1}$ (Hint: Try a comparison!)

k. (9 pts) $\int_4^{\infty} xe^{-x^2} dx$