

HW 3 *Integration by Parts*

1. Evaluate the following

$$(i) \int x^2 \ln x \, dx$$

$$(ii) \int x \sec^2 x \, dx$$

$$(iii) \int e^{-x} \sin 4x \, dx$$

$$(iv) \int x^2 e^{2x} \, dx$$

$$(v) \int_0^{\pi/2} x \cos 2x \, dx$$

$$(vi) \int_{1/2}^{\sqrt{3}/2} \sin^{-1} x \, dx$$

HW 4 *Trig Integrals*

1. Evaluate the following

$$(i) \int \sin^3 x \cos^2 x \, dx$$

$$(ii) \int \cos^3 x \, dx$$

$$(iii) \int \sin^2 x \cos^4 x \, dx$$

$$(iv) \int \sin^3 x \cos^5 x \, dx$$

2. Evaluate the following

$$(i) \int \tan x \sec^3 x \, dx$$

$$(ii) \int x \tan^2 x \, dx$$

$$(iii) \int \tan^2 x \sec^4 x \, dx$$

$$(iv) \int_0^{\pi/4} \tan^3 x \sec^2 x \, dx$$