

Math 1450, Honor Calculus Practice5, Fall 2015.

October 19, 2015

PSID: \_\_\_\_\_ Name: \_\_\_\_\_

I. U-substitution

(a) Find  $\int \sin^n(x) \cos^m(x) dx$  if either  $n$  or  $m$  is an odd number.

(b) Find  $\int \sin^2(x) \cos^2(x) dx$ .

(c) Find  $\int \cos(15x) \cos(4x) dx$ .

(d) Find  $\int \sec^9(x) \tan^5(x) dx$ .

(e) Find  $\int \sec^4(x) \tan^6(x) dx$ .

(f) Find  $\int \tan^3(x) dx$ .

II. Integration by parts

(a) Find  $\int x^7 e^x dx$ . (b) Find  $\int e^x \sin(x) dx$ . (c) Find  $\int x^3 e^{x^2} dx$ .