

Group: \_\_\_\_\_

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

**Math 231 A. Worksheet 2.**

**1.** Evaluate using integration by parts

(a)  $\int \arctan x \, dx$

(b)  $\int \frac{\ln x}{x^2} \, dx$

(c)  $\int x \tan^2 x \, dx$ . (**Hint:** Start by using  $\tan^2 x + 1 = \sec^2 x$ .)

**2.** Use “process of elimination” to evaluate the integral  $\int \frac{\ln(x^2 + 1)}{x^2} dx$ .

(a) Try substitution. Write down two possible choices of  $u$ . For each choice, either solve the problem or explain clearly why the choice does not work.

(a) Try parts. Write down two possible choices of  $u$  and  $dv$ . For each choice, either solve the problem or explain clearly why the choice does not work.

**3.** Use “process of elimination” to evaluate the integrals.

(a)  $\int x^3 \sqrt{x^2 + 1} dx$

(b)  $\int e^{\sqrt{x}} dx$