

SOME INTEGRALS TO RECALL

Before section 3.2 and Chapter 4, it is timely to review some antiderivatives.

$$1. \int \frac{dy}{ay+b} = \frac{1}{a} \ln |ay+b| + C$$

use
 $\tan^2 \theta + 1 = \sec^2 \theta$

$$2. \int \frac{dx}{x^2+a^2} = \frac{1}{a} \arctan\left(\frac{x}{a}\right) + C$$

partial
fractions

$$3. \int \frac{dz}{z(a-bz)} = \frac{1}{a} \ln \left| \frac{z}{a-bz} \right| + C$$

IBP
to get
reduction
formula

$$4. \int x^n e^{ax} = \frac{1}{a} x^n e^{ax} - \frac{n}{a} \int x^{n-1} e^{ax} dx$$

IBP
twice to
find I

$$5. \int e^{at} \cos bt dt = \frac{e^{at} (a \cos(bt) + b \sin(bt))}{a^2 + b^2} + C$$