

Unit 11: Computing integrals

Vocabulary and notation

$u dv$ and $v du$ substitution integration by parts
dilation translation anti-derivative

Skills

- Know how to integrate by parts
- Know the “lonely dx” trick for integration by parts
- Know how to integrate via substitution
- Know how to use substitution and compute new limits of integration when you don’t change variables back
- Be able to choose variable names in indefinite integrals that don’t result in confusion
- Be aware of the lookup table at the end of Unit 10, and how to use it
- Be able to integrate $p(x)e^x$ and $p(x)e^{-x}$ if p is any polynomial
- Realize that many functions have no antiderivative that is expressed in terms of functions you know the names of
- Be able to state Proposition 10.9 “linearity of the anti-derivative”; be prepared to justify it