**Math 280: 7.5 Strategy for Integration**

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| *Some Basic Identities* |
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**Vanden Eynden**

1. **Simplify the integrand, if possible. Do a little algebra first.**
   * Distribute, multiply out (FOIL), etc.
   * Rationalize the numerator (or denominator)
   * Change trig functions to sines and cosines
   * Use a basic trig identity
2. **Look for an obvious u-substitution.** 
   * Look for a  for which  is readily available (except for a constant multiple)
   * If possible, attempt substitution BEFORE partial fractions or integration by parts
3. **Classify the integrand**
   * Trigonometric Forms: powers of sinx and cosx, powers of tanx and secx
   * Rational Function: try Partial Fractions
   * A **product** of functions (or single term): Integration by Parts 

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| --- | --- |
| *Expression in the integrand* | *Substitution* |
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|  |  |

* + Radicals: if , use Trig Substitution 🡪

if , try 

* + Powers: if , use Trig Substitution 🡪

1. **Try, Try again. Persevere!**
   * Try Substitution

L – Logs Higher: u

I – Inverse Trig

A – Algebraic

T – Trig

E – Exponential Lower: dv

* + Try Integration by Parts, 
  + Manipulate the integrand with algebra
  + Relate the problem to a previous problem
  + If the problem reverts back to the original integral, add/subtract the integral to the both sides of the equation to solve for the unknown integral
  + Use more than one method. Separate sums/differences and look at the terms as separate integration problems. Whittle away at the integral!
  + Persevere!

1. For each of the following integrals, name one integration technique you could use to evaluate the integral effectively. DO NOT INTEGRATE!!

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1. 
2. 
3. 
4. 
5. 
6. 

**Chapter 7 In-Class Exam Formula Sheet (You will be provided a fresh copy on exam day)**

**Math 280, Vanden Eynden**

**Derivatives of Inverse Trig Functions:**

  

  

**Established Integration Formulas**









**Half-Angle Formulas**

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**Double-Angle Formulas**







**Product Formulas**





