**MAT 120**

**Practice Sheet for Integral Calculus**

**From Calculus by Howard Anton (10th Edition)**

|  |  |
| --- | --- |
| 5.2 | 15-22, 25, 27-31 Indefinite Integral |
| 5.3 | 23-26, 31-38, 43-68 Integration by Substitution |
| 5.4 | 27-30, 35-37 The definition of Area as a limit; Sigma notation |
| 5.5 | 13-15, 22, 23, 25, 27, 37 The definite integral |
| 5.6 | 16, 17, 19-21, 23-28, 35, 36 The fundamental theorem of calculus |
| 5.9 | 5-22, 32, 33, 35-40 Evaluating definite integral by substitution |
| 6.1 | 7, 9, 11, 17, 18 Area between two curves |
| 6.2 | 1-16, 19, 22-25, 33, 34 Volumes by Slicing; Disks & Washers |
| 6.3 | 1- 7, 9, 10, 13-16, 25(a) Volumes by Cylindrical shells |
| 6.4 | 3, 5, 7, 27, 29 Length of a plane curve |
| 6.5 | 1-8 Area of a Surface Revolution |
| 7.1 | 1-30 Overview of Integration methods |
| 7.2 | 10-35 Integration by parts |
| 7.3 | 5, 7, 13, 19, 43, 44, 47 Integrating Trigonometric functions |
| 7.4 | 3, 5, 7, 19, 23, 27 Trigonometric substitution |
| 7.5 | 1-34 Integrating rational functions by partial fractions |
| 7.8 | 1(d), 5, 7, 19, 27, , , |
|  | Gamma Beta Functions (Exercise sheet from TSR) |

Selected exercise from text book Differential Equations **by Dennis G Zill (7th Edition**)

**Chapter Problems**

2.2 1-14, 19-26 Separable variables (1st order DE)

2.3 3-17, 19, 24, 25, 26, 29, 30 Linear equations

2.4 1-5, 7, 9, 10, 12, 13, 17, 21-26 Exact Equation

2.5 1-14 Solutions by substitution

3.1 1, 2, 3, 8, 9 Linear equations (Modeling with 1st order DE)

4.2 1-7, 10, 11, 15, 16 Reduction of order (Higher order DE)

4.3 1, 3, 5, 9, 11, 13, 14, 15, 17, 23, 25, 29, 30, 31, 33, 35, 37, 39 Homogeneous

linear equations with constant coefficients

4.4 1, 3, 5, 7, 17 Undetermined coefficients (Superposition approach)

4.5 35, 39, 40, 42, 46, 47, 53, 55 Undetermined coefficients (Annihilator approach)

4.6 1-6, 10, 11, 15, 17 Variation of parameters