King Saud University

Department of Mathematics

Math 106: Integral Calculus

Semester: 1447/2

[N. B.: Questions should be solved during tutorial]

Book: **Calculus by Swokowski, Olinick, Pence (Sixth Edition)**

SectionsTopics Exercises

4.1. Anti-derivatives and indefinite integrals:
1,5,7,11,14,15,17,23,27,29,35,41,43,49

4.2. Change of variables in indefinite integrals:1,3,5,7,9,16,20,21,27,32,37

4.3. Summation notation and area:1,2,3,5,6,9,12,27,37

4.4. The definite integral:1,5,10,11,15,16,19,20,31,33,37

4.5. Properties of definite integral:7,10,11,15,17,22,23,25,29,34

4.6. The fundamental theorem of calculus
1,7,8,9,11,12,13,15,17,21,29,32,36,45,47

4.7. Numerical integration: 15,16,17,18,33,34

6.2 The natural logarithm function: 3, 5,9,11,32,35,39,41,42

6.3.The exponential function:1,3,6,11,15,31,33

6.4. Integration using natural logarithm and exponential function:
1,3,6,11,15,18,19,30,3

6.5. General exponential function and logarithm
function:1,5,15,17,23,29,37,39,41,4

6.7.Inverse trigonometric functions:31,33,37,43,51,52,56,57,60,61,62

6.8.Hyperbolic and inverse hyperbolic
functions:19,20,21,28,29,61,63,65,67,73,74,75,79,80

6.9. Indeterminate forms and L'Hopital's rule:49,51,57,58,59,64,65,74,76

7.1. Integration by parts:1,2,7,11,12,13,16,17,31

7.2.Trigonometric integrals:1,3,4,5,7,9,11,13,15

7.3. Trigonometric substitutions: 1,3,5,7,9,10,21,22

7.4. Integrals of rational functions (Partial fractions): 1.2.5,6,9,11,25

7.5. Quadratic expressions and miscellaneous substitutions:1,3,5,6,10,12,25,26,27,28,32,47,48,49,50

7.7. Improper integrals :1,2,4,7,13,14,15,17

5.1. Area between curves:5,6,9,10,11,12,14,27,28,31

5.2. Volume (by disk or washer method):5,6,8,9,21,25

5.3.Volume (by Cylindrical shells method):5,6,7,11,13,15,17,19,21

5.5. Arc length and surface of revolution: 5,7,11,12,13,29,30,32,35,36,42

9.1. Parametric equations: 1,3,5,7,25

9.2 .Arc length and surface area: 1,5,7,9,21,29,31,33,35,37

9.3.Polar coordinates:1,2,3,5,7,9,27,31,33,37,38,51,53,59

9.4.Integrals in polar coordinates:1,3,18,19,22,23,27,30,35,37