

King Saud University

Department of Mathematics

Math 106: Integral Calculus

Semester I: 2023-2024

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

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

<u>Sections</u>	<u>Topics</u>	<u>Exercises</u>
4.1.	Antiderivatives 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

