VISION 2030 رؤية
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

قـسـم الـريـاضـيـات
Department of Mathematics

جامعة الملك عبدالعزيز
KING ABDULAZIZ UNIVERSITY

Course Syllabus

Subject Code	MATH 111		Assessment Details	Percentage		Textbook Information		
Subject Name	Principles of Mathematics		First Exam	30%	Author	Department of Mathematics		
Credit Hours	3 hours		Second Exam	30%	Date	2019		
Pre-Requisites	----		Final Exam	40%	Title	Principles of Mathematic and its Application for Theoretical Disciplinary (Administration and Humanities)		
Faculty	Science		In-course Assessment	-	Edition	11th	Publisher	Khawarizm Academic

Chapter	Title	Section	Title	Theoretical (Definitions and Theorems)	Examples	Exercises	Homework
1	Basic Principles in algebra	1. 1	Principles of sets	Definition of sets, Numerical sets, Real number properties, Operations on sets; Absolute value, Absolute Value Properties.	1,2,3,4,5,7, 8,10,11,12,15- 17	3,6, 9,10,23	4,5,7,16,24,27
		1. 2	Algebraic operations of real numbers	Algebraic Addition, Algebraic Multiplication, Divisors, Multiples of Number, Fractions, Fractions Comparison.	1,2(2,3,6,7), 3(3), 4(3), 5(3,4), 6(3),13,16 18, 22, 23(3,4), 24	2,5,8,11	1,3,6,7,9,15
		1. 3	Exponential and Radicals	The Exponentials, Properties of the Exponentials, Radicals, the Properties of the Radicals.	1(2,4,5),2(2,5),3(2,5,7),4(2,3,7),5,6(1,2),7(5,6),8(2,4,8),9(1,3),10(1,3),11(2,3,6,7),12(1,3),13(1,5,6),14	1,3,5, 11,15, 24(6,9,15)	4,6,8,13, 16
2	Factorization	2. 1	Algebraic expressions	Algebraic magnitude, Calculations on Algebraic Amounts (Division first only).	1,2,3(2,4,5,7),4(1,2).	2,4,7,11,17	3,6,10,14,18
		2. 2	Factoring of Algebraic Expression	The Common Factor, The Difference Between Two Squares, The Difference Between Two Cubes, The Sum of Two Cubes, The Complete Square.	1(1,3,4),2(2,3,4),3(1,2,3,5),4(1,3,5),5(1,2,5)	2,4,5,8, 10	1,3,7
		2. 3	Factoring of quadratic Expression	The First Case; The Coefficient of x^2 is One.	1-4	1,4,5	2,3, 6
		2.4	Operations on fractional algebraic Expressions	Simplifying Algebraic amounts, Adding and Subtracting Algebraic Fractions, Multiplying and Dividing Algebraic Fractions.	1,3,4,5 ,11	2,4,6,15	3,5,7,10, 20
		2.5	Intervals	Finite and Infinite Intervals.	1,2,3,4	3,6,8	2,5,10
3	Matrices and Determinants	3. 1	Matrices	Definition of Matrix, Matrix Shapes, Transpose Matrix, Adding and Subtracting Matrices, Matrices Constant Multiplication.	1,2,3,6, 10	1(i),6(1,3,5,6)	1(iii), 5(i, ii, iv, vi)
		3. 2	Determinants	Definition of Determinant, Calculate the Determinant for the Second Order.	2	2,4	1,3

Chapter	Title	Section	Title	Theoretical (Definitions and Theorems)	Examples	Exercises	Homework
4	Equations and Inequalities	4. 1	Rectangular Coordinates	The Distance Between Two Points In The Plane, The Midpoint Between Two Points In The Plane.	1,2,4,8	5,6,10,22	1,7,11, 20
		4. 2	First Degree Equations	First Degree Equation in One variable, In the Form of a Fraction, in The Form of A Root and First Degree Equations in Two variables And Methods of Solving Them.	1,3,4,6-8,12,13,14-16	2,4,10, 11,16	1,5,13, 19
		4. 3	Line Equations	Different Forms of linear Equations, Parallel and Vertical Lines.	1,3,5,6,8,9,13,14,16	3,6,13, 18,23	4,7,14,15,21
		4.4	Quadratic Equations	Methods of Solving Second Degree Equations in One variable Algebraically.	1,4-6,8,13,17,18	3,4,7,9, 14,22(2,12,25)	1,6,11, 22(1,14,28)
		4.5	Linear inequalities	Solving Linear Inequalities.	1-3	1,3	2
5	Functions	5.1	Functions	Ordered Pairs, Cartesian Products, Relations, Functions.	1,5,6,7,10	2,7	5,9
		5.2	Algebraic Functions	Algebraic Functions, Types of Algebraic Functions, Operations on Functions.	1, 2, 4, 5, 8, 9, 10 (without graph), 13,15,16,17	1(3,5),3(1,6),5 ,14,17,18	1(2),3(2,5),6,9, 13 ,16
		5. 3	Even and odd function	The Properties of Even and Odd Function.	2,5,7(1, 2, 3)	1(3,7)	1(5,11, 16)
		5. 4	Transcendental functions	Exponential Function, Logarithmic Function, Laws of Logarithms, Exponential and Logarithmic Equations.	1, 6, 9 (1, 2), 10 (1, 2, 3)	1(1,3),2(2),3(4),4(2,3,6),5	1(4),2(1),3(2),4(5,8),6, 11
6	Sequences	6. 1	Sequences	Definition of Arithmetic Sequence, Definition of Geometric Sequence.	1,16	1(a, d, h)	1(c, g)
		6. 2	Administration and Humanities Applications	Ratio, Rate, Percentage, Proportion, Solution of Proportion, Examples of Ratio and Proportion, Issues of The Statutes (Only the First One).	1, 2, 4,7,12, 13,15,16,19 20,21,23(1,3) ,25, 26, 27	7,15,31,40,43, 45,50,52	44,49,51,53,58, 63,69