

Curriculum Tentative Schedule

#	Chapter's Title	Topic/Activity	Examples	Exercises	Due to Week No.
Chapter P Preliminaries	P.1	“ Real numbers and the real line ” Intervals-Inequalities-Absolute value.	2(a,b), 3(a), 4(a), 6, 7 Add examples: Solve $x^2 - 5x + 6 > 0$ $ x - 6 \geq 5$, $ x + 4 > 6$	14, 15, 18, 21, 28, 29, 35, 37 Solve $x^2 - 9 \geq 0$	One
	P.2	“ Cartesian coordinates in the plane ” Axis scales-Distances-Graphs-Straight line-Equations of lines.	2, 3, 6-11 Solve Exercise 31	1, 3, 13, 15, 16, 21, 23, 25, 27, 28, 31, 32	Two
	P.3	“ Graphs of quadratic equations ” Explain the polynomial function which is found in part 6 page 39. Shifting a graph.	8, 9	35-38	
	P.4	“ Functions and their graphs ” Definition of function-The domain convention-Graphs of functions-Even and odd functions.	2-7 Solve Exercises 11, 12, 18	1, 3, 4, 5, 11-14, 17, 18, 29, 30	Three
	P.5	“ Combining functions to make new functions ” Sums, differences, products, quotients, multiples-Composite functions-Piecewise defined functions.	3-4, 6-10	1, 7, 9, 25	
	P.7	“ The trigonometric functions ” Definition 6-Definition 7-Some useful identities-Some special angles-The additional formulas-Other trigonometric functions.	1-5, 7	1, 3, 5, 7, 9, 13, 16, 25, 29	Four
		1- Convert from degrees to radians (a) 45° (b) 120° (c) 12° (d) 270° 2- Convert from radians to degrees (a) $\frac{2\pi}{3}$ (b) $\frac{\pi}{3}$ (c) $\frac{5\pi}{6}$ (d) $\frac{3\pi}{4}$ 3- If the radius of a circle is 9 cm, what angle is subtended by an arc of 12 cm? 4- If a circle has radius 4 cm, what is the length of an arc subtended by a central angle of $\frac{3\pi}{4}$ rad?			

Chapter 1 Limits and Continuity	1.2 “ Limits of functions ” Definition1-One-Sided limits-Rules for calculating limits-The Squeeze Theorem.	1, 3, 4(a, c), 5-7, 9, 10	1, 7, 9, 11, 13, 14, 17, 18, 20, 22, 23, 30, 61, 63, 66, 74, 75	Five
	1.3 “ Limits at infinity and infinite limits ” Limits at infinity-Limits at infinity for rational functions-Infinite limits.	1-5, 8, 9, 10	1, 3, 4, 5, 8, 9, 11, 13, 14, 23, 29, 35, 37, 43, 47, 49	
	1.4 “ Continuity ” Continuity at a point-Continuity on an interval-Continuous extensions and removable discontinuities.	1-5, 6(a, b, c, d), 8	1, 7, 9, 13, 14, 17, 18	
EXAM 1				Six (Initial appointment)
Chapter 2 Differentiation	2.1 “ The tangent lines and their slopes ” Defintion1-Definition2-Definition3-Normals	1, 4, 6, 7	1, 3	Seven
	2.2 “ The derivative ” Definition4-Some important derivatives-Leibniz notation.	1, 2(a), 3	11, 31, 35, 37, 41, 43	
	2.3 “ Differentiation rules ” Sum and constant multiples-The product rule-The reciprocal rule-The quotient rule.	1, 3, 4, 7-9	1, 5, 7, 9, 10, 13, 15, 19, 21, 28, 42	
	2.4 “ The chain rule ” The chain rule-Building the chain into differentiation formulas.	1, 2, 3(a), 5(a)	1, 4, 7, 8, 31, 36	Eight
	2.5 “Derivatives of trigonometric functions” Some special limits-The derivative of sine and cosine-The derivatives of the other trigonometric functions.	Find $\lim_{x \rightarrow 0} \frac{\sin 2x}{x}$, 2, 3, 5	3, 5, 7, 11, 13, 15, 17, 26, 29, 31, 35, 53	
	2.6 “ Higher-Order derivatives ”	2, Find $y^{(3)}$ if $y = 3x^4 - x^3 + 2x - 15$ $y = x \sin x$	1, 3, 9, 11	Nine
	2.8 “ The Mean-Value Theorem ” Increasing and decreasing functions - Theorem 12	4	8, 9, 11	
	2.9 “ Implicit Differentiation ” Implicit Differentiation	1, 3	1, 3, 5	

Chapter 3 Transcendental Functions	3.1 “Inverse functions” Definition1 - Defintion2 - Properties of inverse functions	1, 2	1, 3, 5, 6, 9	Ten
	3.2 “Exponential and logarithmic functions” Definition 4 - laws of exponents Definition 5 - laws of logarithms	3-4	1, 3, 5, 7, 9, 13, 15, 21, 23, 24	
	1- Solve the following equations: (1) $2^{x-2} = 8$ (2) $3^{2x-4} = 9$ (3) $4^{x-1} = 8$ (4) $9^{x+1} = 27$ 2- Simplify the following mathematical expressions: (1) $\log_5 125$ (2) $\log_{1/3} 3^{2x}$ (3) $\log 25 + \log 4$ (4) $\log_2 64 - \log_2 32 + \log_2 2$ (5) $\log_3 27 - \log_3 81 + 5\log_3 3$ (6) $5^{2\log_5 2}$ (7) $(\log_4 16)(\log_4 2)$			
	EXAM 2			Eleven (Initial appointment)
Chapter 4 More Applications of Differentiation	3.3 “The natural logarithm and exponential” Natural logarithm and its derivative - Natural exponential its derivative - The general logarithm and its derivative - The general exponential and its derivative	first part of 1, 2-3	1, 3, 5, 7, 11, 12, 19, 21, 23, 25, 31, 33, 37, 42, 44	Twelve
	4.4 “Extreme Values” Maximum and minimum values-Critical points-Local extreme values-The first derivative test.	1 below	5 (find abs. max and abs. min), 18-20 (find local max and local min)	Thirteen
	4.5 “Concavity and inflections” Concave up and concave down-Inflection points.	2 below	2, 3, 4, 5	
Example (1): Find, critical points, the absolute maximum point and the absolute minimum point of the function $f(x) = 3x^2 - 12x + 1$ in $[0, 3]$. Example (2): If $f(x) = x^3 - 3x^2 - 9x + 2$, find the following: 1- The critical points 2- Increasing intervals 3- Decreasing intervals 2- Local maximum value 4- Local minimum values 5- Concave upward intervals 7- Concave downward intervals 8- Inflection points.				
General Revision				Fourteen

- **Textbook:**

“ General Mathematics for Preparatory Year Students ”

Compiled from: Robert A. Adams and Christopher Essex, *Calculus: A complete course*, Eighth Edition.

- **Curriculum Policy:**

The information of

1. distributing the grades,
2. missing Exams I or II, and
3. DN of attendance,

will be determined later by the MATH 101' High Committee.

Best Wishes