

COURSE SYLLABUS

Course Title: Mathematics (9th Grade, Intermediate)

The Asian International School

INSTRUCTIONAL RESOURCES

- Supplementary Material
- Worksheets

LEARNING OUTCOMES

Upon successful completion of this course, the student will be able to:

- Understand and work with circles.
- Understand and work with cylinders, cones, and spheres.
- Understand, work with, and graph linear functions and systems of linear equations.
- Understand, work with, and graph quadratic functions.

COURSE REQUIREMENTS

In order to take this course:

- A scientific calculator will be useful for performing calculations.
- Access to a computer with one of the following programs will be useful:
 - [GeoGebra](#) (Free)
 - [Mathematica](#) (Paid)
 - [GNU Octave](#) (Free)
 - [MATLAB](#) (Paid)

I. COURSE SCHEDULE

MONTH/ CHAPTER	UNIT TITLE	LEARNING OUTCOMES	TIME FRAME	NOTES
SEMESTER 1		18 WEEKS		
AUG./ CHAPTER 1: Circles	Unit 1: Introduction to Circles	<ul style="list-style-type: none">• Define<ul style="list-style-type: none">○ Center○ Radius○ Diameter○ Chord○ Arc	4 weeks	

		<ul style="list-style-type: none"> • Discuss <ul style="list-style-type: none"> ○ Chords and the distance of a chord from the center of a circle ○ The properties of lines tangent to circles ○ The relative position of two circles 		
SEP./ Chapter 1: Circles	Unit 2: Arc Length and Area of a Sector	<ul style="list-style-type: none"> • Circumference and Area of a circle • The length of an arc on a circle • The area of a sector of a circle 	4 weeks	
OCT./ Chapter 1: Circles & Chapter 2: Cylinders, Cones, and Spheres	Chapter 1: Unit 3: Angles Related to A Circle Unit 4: Circle Theorems Chapter 2: Unit 1: Cylinders	Chapter 1 <ul style="list-style-type: none"> • Define and understand the concept of intercepted arc, central angle and inscribed angle • Determine the relationship of the central angle to its intercepted arc and inscribed angle to its intercepted arc • Solve unknown angles in the circle Chapter 2 <ul style="list-style-type: none"> • Define and understand lateral surface, height or altitude of cylinder and volume • Calculate the lateral area and volume of a cylinder 	4 weeks	Mid-Term Exam
NOV -DEC./ Chapter 2: Cylinders, Cones, and Spheres	Unit 2: Cones Unit 3: Spheres	<ul style="list-style-type: none"> • Identify the parts of a cone • Calculate the lateral area of a cone • Calculate the volume of a cone • Calculate the volume of a truncated cone • Calculate the surface area of a sphere • Calculate the volume of a sphere • Solve word problems involving surface area and volume of a sphere 	6 weeks	Final Exam and Vietnamese Exam

SEMESTER 2		16 WEEKS		
JAN./ Chapter 3: Linear Functions	Unit 1: Graph of Linear Functions	<ul style="list-style-type: none"> Define and understand the meaning of slope, x- and y-coordinates, x- and y-intercepts, points or coordinates Graphing linear functions by; slope-intercept method x- and y-intercepts slope and a point Determine a linear function from a given graph 	4 weeks	
FEB./ Chapter 3: Linear Functions	Unit 2: Linear Equations in Two Variables Unit 3: Solutions to Systems of Linear Equations	<ul style="list-style-type: none"> Graph linear equations using the different methods Solve word problems involving solutions to system of linear equations Solve system of linear equations in more than two variables by; <ul style="list-style-type: none"> Graphing Substitution Solve simple word problems involving solutions to system of linear equations 	2 weeks	
MAR./ Chapter 4: Quadratic Functions	Unit 1: Introductions Unit 2: Graph of Quadratic Functions	<ul style="list-style-type: none"> Construct table of values for a given quadratic function Tell whether a given table of values is quadratic or not Determine a quadratic function given its table of values 	4 weeks	Midterm Exam
APR./ Chapter 4: Quadratic Functions	Unit 2: Graph of Quadratic Functions Unit 3: Comprehensive Project	<ul style="list-style-type: none"> Identify the different parts of the graph of quadratic functions Graph quadratic functions of the form; <ul style="list-style-type: none"> $y = ax^2$ $y = ax^2 + c$ $y = ax^2 + bx$ 	6 weeks	Final Exam and Vietnam ese Exam
TOTAL: 4 Chapters – 12 Units			32 WEEKS	