

MITA International School Syllabus 2019

三田国際学園中学校・高等学校 2019年度 シラバス

Grade Level / Course 学年 / コース	S2 ICA	Subject Area / Class 教科 / 科目	Math B	Class hours 時間数	3 hours / week
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1学期 中間試験 Term 1 Midterm

Name of Unit, Project 単元名	1: Functions from a Calculus Perspective 6: Systems of Equations and Matrices	Textbooks / Materials 使用教科書 / 教材	Precalculus (Glencoe 2014 Common Core Edition)
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Unit Description 単元の概要	Students will multiply matrices and find determinants and inverses of matrices. Students will solve systems of linear equations using matrix algebra. Students will write partial fraction decompositions of rational expressions.
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Unit Standards 本単元の内容と評価規準			Others 備考
<p>糸 A3 Use linear optimization techniques to solve application problems.</p>	<p>B3 Use a system of equations to model a situation and utilize matrix algebra to solve for the unknowns.</p>	C3	<p><評価方法></p> <p><ICT・Creation> Students will be introduced to Khan Academy and Google Classroom. They will complete assignments on these platforms throughout the year.</p>
<p>好 A2 Multiply matrices. Find inverses and determinants of matrices.</p>	<p>B2 Solve a system of linear equations using matrix algebra.</p>	C2	
<p>知 A1 Recognize the difference between different row-echelon forms.</p>	<p>B1 Understand and use the operations that produce equivalent systems.</p>	C1	
Recognition	Logical Thinking	Creative Thinking	

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1学期 期末試験 Term 1 Final

Name of Unit, Project 単元名	7: Conic Sections and Parametric Equations	Textbooks / Materials 使用教科書 / 教材	Precalculus (Glencoe 2014 Common Core Edition)
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Unit Description 単元の概要	Students will analyze, graph, and write equations of parabolas, circles, ellipses, and hyperbolas. Students will use equations to identify types of conic sections. Students will solve problems related to the motion of projectiles.
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Unit Standards 本単元の内容と評価規準			Others 備考
知 A3 Solve real-world problems using conics.	B3 Model using conics.	C3	<評価方法> <ICT・Creation> Students will use Desmos to analyze graphs of various equations.
好 A2 Write an equation of a conic given a set of characteristics.	B2 Graph conics given an equation. Sketch a curve given a pair of parametric equations.	C2	
知 A1 Use and understand key vocabulary.	B1 Identify conics given an equation.	C1	
Recognition	Logical Thinking	Creative Thinking	

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2学期 中間試験 Term 2 Midterm

Name of Unit, Project 単元名	10: Sequences and Series	Textbooks / Materials 使用教科書 / 教材	Precalculus (Glencoe 2014 Common Core Edition)
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Unit Description 単元の概要	Students will represent and calculate sums of series with sigma notation. Students will prove statements by using mathematical induction. Students will expand powers by using the Binomial Theorem.
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Unit Standards 本単元の内容と評価規準			Others 備考
知 A3 Solve application problems using series.	B3 Model real-world situations using series.	C3	<評価方法> <ICT・Creation> Students will use Khan Academy and Desmos to study sequences and series.
好 A2 Calculate sums. Determine the common difference / common ratio of a given sequence.	B2 Use the Binomial Theorem to find coefficients and expand a given binomial.	C2 Represent a given function as an infinite series and determine intervals on which the series converges.	
知 A1 Use and understand key vocabulary.	B1 Write an explicit formula for the n^{th} term of a sequence. Write a recursive formula for a sequence.	C1 Use mathematical induction to prove a conjecture.	
Recognition	Logical Thinking	Creative Thinking	

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2学期 期末試験 Term 2 Final

Name of Unit, Project 単元名	11: Inferential Statistics	Textbooks / Materials 使用教科書 / 教材	Precalculus (Glencoe 2014 Common Core Edition)
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Unit Description 単元の概要	Students will use the shape of a distribution to select appropriate descriptive statistics. Students will construct and use probability distributions. Students will find and use confidence intervals, and perform hypothesis testing.
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Unit Standards 本単元の内容と評価規準			Others 備考
知 A3 Use statistics to find probabilities of real-world situations.	B3 Model using statistics.	C3	<評価方法> <ICT・Creation> Students will use the Desmos and Numbers apps to compute and analyze data distributions.
好 A2 Describe the shape of a distribution and summarize the spread of the data.	B2 Use a distribution to construct confidence intervals.	C2 Perform linear regression and interpret the results.	
知 A1 Use and understand key vocabulary.	B1 Construct histograms and box-plots. Classify random variables.	C1 Perform hypothesis testing. Determine whether there is enough evidence to reject the null hypothesis.	
Recognition	Logical Thinking	Creative Thinking	

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3学期 期末試験 Term 3 Final

Name of Unit, Project 単元名	12: Limits	Textbooks / Materials 使用教科書 / 教材	Precalculus (Glencoe 2014 Common Core Edition)
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Unit Description 単元の概要	Students will evaluate limits of polynomial and rational functions. Students will learn about rates of change. Students will find and evaluate derivatives of polynomial functions.
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Unit Standards 本単元の内容と評価規準			Others 備考
知 A3 Use limits to solve real-world problems.	B3 Use limits to model a situation.	C3	<評価方法> <ICT・Creation> Students will use Khan Academy and Desmos to study limits of functions.
好 A2 Evaluate limits of polynomial of rational functions. Calculate a derivative.	B2 Use a graph to estimate limits and interpret the results.	C2 Solve motion problems.	
知 A1 Use and understand key vocabulary.	B1 Estimate one-sided and two-sided limits algebraically.	C1 Interpret the meaning of a limit or rate of change in a given scenario.	
Recognition	Logical Thinking	Creative Thinking	