

MATHEMATICS A

1. Mathematical Reasoning (5-10% of Regents Exam)

Logic - Constructing Valid Arguments

- Venn Diagrams
- Truth Values: and, or, implies, if and only if
- Related Conditionals: converse, inverse, contrapositive
- Truth Value of Compound Sentences
- Truth Value of Open Sentences

2. Numbers & Numeration (5-10% of Regents Exam)

- Rational & Irrational Numbers
- Approximations of Irrational Numbers
- Properties of Real Numbers

3. Operations (15-20% of Regents Exam)

Algebraic Skills

- Signed Numbers
- Order of Operations & Evaluating Expressions
- Addition & Subtraction of Polynomials
- Multiplication of Polynomials
- Division of Polynomials by Monomials
- Operations with Radicals
- Scientific Notation
- Algebraic Fractions
- Factoring

Exponents

Transformations

- Line Reflection
- Translation
- Rotation
- Dilation
- Line & Point Symmetry

Applications of Mathematics

4. Modeling/Multiple Representation (15-25% of Regents Exam)

Problem Solving with Algebra & Geometry

- Algebraic Representations
- Triangle Inequalities
- Formulas & Literal Equations
- Types of Angles

- Sum of Interior & Exterior Angles of Polygons
- Study of Triangles
- Study of Quadrilaterals

Geometric Constructions

- Basic Constructions
- Congruence
- Similarity

Transformations in Coordinate Geometry

- Reflection in a Line
- Reflection in a Point
- Translations
- Dilations

Locus

- At a Fixed Distance from a Point
- At a Fixed Distance from a Line
- Equidistant from Two Points
- Equidistant from Two Parallel Lines
- Equidistant from Two Intersecting Lines
- Compound Locus

5. Measurement (15-25% of Regents Exam)

Application of Formulas

- Perimeter of Polygons & Circumference of Circles
- Area of Polygons & Circles
- Volume of Solids
- Pythagorean Theorem

Apply Appropriate Units & Tools

- Metric/English Conversions
- Use of Tools

Analyzing in 3-D

Statistics

- Collecting & Organizing Data
- Measures of Central Tendency: Mean-Mode-Median
- Quartiles & Percentiles

Right Triangle Trigonometry

Proportions

- Ratio
- Proportions
- Scale Drawing
- Percent
- Similar Figures

- Similar Polygons: Ratio of Perimeters & Areas
- Comparison of Volumes of Similar Solids
- Direct Variation

Applications in Coordinate Geometry

- Absolute Value
- Length of a Line Segment - Distance
- Midpoint of a Segment
- Equation of a Line
- Parallel & Perpendicular Lines

Error in Measurement

6. Uncertainty (Probability) (5-10% of Regents Exam)

Theoretical versus Empirical Probability

Problems Involving Probability

- Single & Compound Events
- Problems Involving AND & OR

Computing Probabilities

- Mutually Exclusive & Independent Events
- Counting Principle
- Sample Space
- Tree Diagrams

Permutations & Combinations

- Factorial Notation
- Permutations: nPr & nPr
- Combinations: nCr & nCr

7. Patterns & Functions (15-25% of Regents Exam)

Represent & Analyze Functions

- Solve Linear Equations with Integral, Fraction, or Decimal Coefficients
- Solve Linear Inequalities
- Solve Factorable Quadratic Equations
- Graphs of Linear Equations: Slope & Intercept
- Graph Inequalities
- Solve Systems of Linear Equations
- Solve Systems of Inequalities
- Graphs of Conics: Circles & Parabolas
- Solve Quadratic-Linear Pair

Modeling Real World Situations with Functions

SUGGESTED GENERAL STRATEGIES FOR PREPARING IMP YEAR 2 STUDENTS FOR THE MATH A REGENTS EXAM:

- Administer a practice Math A Regents exam. Do an item analysis to determine the areas in which students perform well and the areas in which students need further assistance.
- Use on-going assessment. Students should be given weekly take-home exams, in-class tests, practice tests and quizzes. All tests should correspond to Math A Regents format and should be relative to the Regents' scale.
- Incorporate 1 or 2 Math A questions into daily "Do Now" assignments.
- For all double period classes, 30 minutes should be allotted for 6-10 Math A questions.
- Incorporate Math A Regents questions into daily homework assignments.
- Students must be taught to understand the instructions and terminology used on the Regents Examination. For example, students must recognize that IMP frequency bar graphs are called histograms on the Regents exam.
- Focus students on the format and the rubrics of the Regents.
- Spiral regents questions throughout the remaining school year.
- Relate all questions to a corresponding IMP unit/activity/homework in order to maximize student recall. For example, for questions involving combinations, remind students about *Paula's Pizzas*.
- Emphasize the usefulness of the graphing calculator.
- Encourage students to use their creative problem solving skills by encouraging alternate approaches whenever appropriate.

TEACHER REFERENCE GUIDE

- **Wizard Test Maker**
- **Barron's Let's Review for Math A**
- **New York State Regents Prep Test Center (<http://www.regentsprep.org/>)**
- **IMP Year 1 and Year 2 Regents Documents.**
- **Topical Review Book Co. Regents Examinations in Math A**

IMP / MATH A REGENTS QUESTIONS CORROLATION
IMP, Year 1 Units

Unit	Regents Exam	Part I 1-20 2 pts.	Part 2 21-25 2 pts.	Part 3 26-30 3 pts.	Part 4 31-35 4 pts.
Patterns	June 1999	19			
	August 1999	10,17	23		
	January 2000	6			
	June 2000		21	26	
	August 2000			26	
	January 2001	1,13,20			
Pig	June 1999	1, 7,11			32
	August 1999		22		
	January 2000	5,9,13,17		26	34
	June 2000	16,17	23		34
	August 2000	2,8,11,	25	28	34
	January 2001	6, 14	22	26,30	
Overland	June 1999	8	25	26,28	
	August 1999				35
	January 2000			27	35
	June 2000	10	25		31
	August 2000	19			
	January 2001	4	21,25	30	
Pit	June 1999			29	32
	August 1999	13			
	January 2000				32
	June 2000				33
	August 2000				
	January 2001	18			32
Shadows	June 1999	2, 5,12,13,15		30	
	August 1999	9,12,15		28	31
	January 2000	10	23,25		
	June 2000		24	27,30	
	August 2000	14,18	21		32
	January 2001	2,12, 17		28	35

IMP Year 2 Units

Unit	Regents Exam	Part I 1-20 2 pts.	Part 2 21-25 2 pts.	Part 3 26-30 3 pts.	Part 4 31-35 4 pts.
Solve-It	June 1999	4, 10,16,	22,24		35
	August 1999	7,8	21	29	30
	January 2000	3,4,11,14,15,19	22,24	28	31
	June 2000	4,10,14,15,18,19			35
	August 2000	5, 9,12,15,17,20	23,24		
	January 2001	4,5,7,8,13,15,16,17,	22,25	30	
Bees	June 1999	17,18,20	21,23	27	
	August 1999	1,2,3,5,18,20	24	27	
	January 2000	1,2,12,	23	30	34
	June 2000	2,3,9		28	
	August 2000	7,16,29,23,27	23	27	31,35
	January 2001	3,10, 19	23		
Cookies	June 1999				
	August 1999	16			
	January 2000	7	21,24		33
	June 2000	1,7			31
	August 2000	6,13			
	January 2001				34
Alice	June 1999	8			
	August 1999	4,6			
	January 2000	8,18			
	June 2000	5,6,20		29	
	August 2000	1, 4			
	January 2001	9, 11			
Fireworks	June 1999	9			
	August 1999			26	33
	January 2000				
	June 2000				35
	August 2000				
	January 2001				31
Suppleme nt	June 1999	6,14			31
	August 1999	11, 14,19	25		32
	January 2000	12,16,20	21	29	
	June 2000	8, 11,12,13	22		32
	August 2000	3,10,22	22	30	33
	January 2001			27	33

Supplementary Topics To be Incorporated into Remaining Units:

- Locus
- Equations of Circles
- Algebraic Fractions
- Permutations/Combinations
- Slope/Y-intercept
- Circumference/Area of Circles
- Transformations
- Binary Operations
- Distance/Midpoint Formulas

SUGGESTED CALENDAR FOR REVIEW

	Unit in Process	Total Number of Corresponding Regents Questions	Review Unit	Total Number of Corresponding Regents Questions
WEEK 1	BEES		BEES	36
WEEK 2	COOKIES		BEES	
WEEK 3	COOKIES	10	SHADOWS	26
WEEK 4	COOKIES		SOLVE-IT	47
WEEK 5	COOKIES		SOLVE-IT	
WEEK 6	FIREWORKS TOPICS	4	OVERLAND	15
WEEK 7	ALICE TOPICS	14	PATTERNS	11
			PIG	27
WEEK 8	REVIEW TOPICS		PIT	5