

Student Name:
Grade:
Overall Level:



Problem Solving Level Guide

- **Basics** – understands concepts and can solve straightforward problems
- **Intermediate** – able to solve multi-step contest-style problems
- **Advanced** – able to solve challenging Euclid/CSMC/Hypatia-level problems

Table 1: Topics List and Completion Level

	Subtopic	Concepts	Problem solving
Euclidean Geometry	Line & angle chasing		
	Perimeter & Area		
	Angles in Circles		
	Similar Triangles		
	Polygons		
	3D Geometry		
Analytical Geometry	Coordinate plane		
	Distance & midpoint formula		
	Line equations		
	Intersections & slopes		
	Equation of circles		
	Reflection		

Trigonometry	Trig ratios		
	Sine Law/Cosine Law		
	Sum Formula		
	Identities		
	Double Angle Formula		
	Area relations		
Algebra/Functions/Polynomials	Parabolas		
	Factoring		
	Polynomials		
	Functions		
	Inequalities		
	Systems of equations		
Exponents & Logarithms	Laws of exponents		
	Logarithms		
Sequences & Series	Arithmetic sequences		
	Geometric sequences		
	Series formulas		
	Recursive sequences		
	Pattern recognition		
Counting & Combinatorics	Counting lists		
	Venn's Diagram		
	FCP		
	Restrictive counting		
	Constructive counting		
	Case work		
	Permutations		
	Combinations		
	Binomial theorem		
	Intro to probability		
	Intermediate probability		
	Geometric probability		

Number Theory	Divisibility		
	Primes		
	GCD & LCM		
	Modular arithmetic		
	Diophantine Equations		
	Remainders & integer properties		
Advanced problem solving			

Comments: