Appendix III Mathematic Theorems Used in This Study

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| Principle | Application |  |
| Gödel’s Incompleteness Theorem | Incompleteness |  |
| Compactness Theorem | Completeness Test Defines Compactness |  |
| Lowehheim-Skolem Theorem | Defines Elementary Sub-model as countable |  |
| Morley’s Categoricity Theorem | Cyclic Abelians on ℤ are countable |  |
| Tarski-Vaught Test | Decidability of Sub-modal |  |
| Quantifier Elimantion | The Structure (ℕ, + , \*, <) |  |
| Hilbert’s 10th Problem | Solvable Diaphantine Equations |  |
| Torsion Free Abelian | Countable Structure |  |
| Presburger Arithmetic | {ℕ,-,+,<,0,1} |  |
| Hilbert’s Basis Theorem | Every Algebraic Set has finite number of polynomials |  |
| Curve selection | Equivalance Relations are easily definable in Real Closed Fields |  |
| Uniform Bounding | Semi-algebraic means a finite disjoint union of cells. |  |
| Cell Decomposition | Semi-algebraic means finitely many pairwise disjoint cells C1, . . .Cn  Such that X = C1 ⋃….⋃ Cn | If X is semi-algebraic then then is a tuning vector algorithm; Partitions Topology |
| Desargues’ Theorem | Harmonic Collinearity; Perspective Triangles |  |
| Poncelet’s Theorem | Central Homology and continuity |  |
| Mobius’ Theorem | Barycentric Calculus |  |
| Caley’s Theorem | 4-th dimension |  |
| Tarski-Seidenberg Theorem | Tarski Projection Principle |  |
| Kuratowski 3, 3 | Complete Bipartite Graph |  |
| Tutte’s Theorem | Straight Line Embedding |  |
| Link Condition Lemma | Triangle Simplification |  |
| Hilbert 17th Problem | Square of rational functions |  |
| Monotonicity Theorem | Continuity |  |
| Triangulation Theorem | Homeomorphic to Semilinear set |  |
| Brouwer Fixed-point Theorem | At least 1 fixed point |  |
| Tarjan’s Strongly Connect Graph Algorithm | Finding strongly connected positions |  |
| Uryshon’s | Disjoint Set must have function |  |
| Classification For Compact 2 Manifold | Sphere or torus? |  |
| Polygonal Schema | Represent Triangulation of Sphere as Square or polygon |  |
| Whitney’s Theorem | 2-Manifold embed in ℝ3 or ℝ4; 3-manifoldsembed in ℝ5 (ℝ?6) |  |
| Winding Number | Octave |  |