APPENDIX B

Summary of Propositions

1.1.1	Spherical geodesics
1.1.2	Spherical trigonometry
1.1.5	Angles of a spherical triangle
1.1.6	Area of a spherical triangle
1.2.1	Hyperbolic geodesics
1.2.2	Hyperbolic trigonometry
1.2.5	Angles of a hyperbolic triangle
1.2.7	Area of a hyperbolic triangle
1.3.1	Betweenness in taxicab geometry
2.3.1	Equilateral triangles
2.3.2	Copy a segment
2.3.3	Lay off a segment
2.3.4	SAS
2.3.5	Equal sides $\Rightarrow$ equal angles
2.3.6	Equal angles $\Rightarrow$ equal sides
2.3.7	Lemma for 2.3.8
2.3.8	SSS
2.3.9	Bisection of angle
2.3.10	Bisection of segment
2.3.11	Raise perpendicular
2.3.12-14	Perpendicular bisector
2.3.15	Drop perpendicular
2.3.17	Supplementary angles equal 180^o
2.3.18	$180^o \Rightarrow$ supplementary angles
2.3.19	Vertically opposite angles
2.3.20	Exterior angle > opposite interior angle
2.3.21	Sum of two angles in triangle < 180^o
2.3.22	$a > b \Rightarrow \alpha > \beta$
2.3.23	$\alpha > \beta \Rightarrow a > b$

2.3.24	The perpendicular is the shortest line
2.3.25	$a + b > c$
2.3.26	Inside line is shorter
2.3.27	$a + b > c \Rightarrow$ triangle exists
2.3.28	Copy an angle
2.3.29	ASA
2.3.30	AAS
2.3.31-33	Angle bisector
2.3.34	Equal alternate angles $\Rightarrow$ parallel lies
2.3.35	Supplementary interior, equal corresponding angles $\Rightarrow$ parallel
3.1.1	Parallel lines $\Rightarrow$ equal or supplementary angles
3.1.2	Equidistant straight lines
3.1.3	Parallelism is transitive
3.1.4	Construction of parallel lines
3.1.5	Uniqueness of parallel lines
3.1.6	Exterior angle equals sum of interior angles
3.1.7	Opposite and equal sides $\Rightarrow$ parallelogram
3.1.8	Parallelograms have equal sides & angles
3.2.1	Area of rectangle = ab
3.2.2	Area of parallelogram = bh
3.2.3-4	Equal parallelograms
3.2.5	Area of triangle = bh/2
3.2.6-7	Equal triangles
3.2.8-9	Equal triangles and bases $\Rightarrow$ equal altitudes
3.2.10	Parallelogram = double of triangle
3.2.11	Area of spherical lune
3.2.12	Area of spherical triangle
3.2.13	Convert triangle to parallelogram
3.2.14	Convert parallelogram to parallelogram
3.2.15	Convert triangle to parallelogram
3.2.16	Convert polygon to parallelogram
3.3.1	Construct a square
3.3.2	Pythagoras
3.3.3	Converse of Pythagoras
3.3.4	Spherical Pythagoras
3.3.5	Hyperbolic Pythagoras
3.4.1	Golden Ratio
3.4.2-3	Law of Cosines
3.4.4	Convert rectangle to square
3.5.1	Distributive Law
3.5.2-5	Laws of Proportions
3.5.6	Parallel lines $\Leftrightarrow$ proportional cuts
3.5.7	AAA similarity
3.5.8	SSS similarity
3.5.9	SAS similarity
4.1.1	Equal chords $\Leftrightarrow$ equal arcs $\Leftrightarrow$ equal angles
4.1.2	Semicircles are equal
4.1.3	Radius bisects chord
4.1.4	Tangent to circle
4.1.5	Proportional arcs and angles
4.2.1	Central angle equals twice the angle at the circumference
4.2.2	Angles at the circumference are equal
4.2.3	Angle on diameter equals right angle

SUMMARY OF PROPOSITIONS

4.2.4	Tangent and chord
4.2.5	Tangent and secant
4.2.6	Angles in cyclic quadrilateral
4.2.7	Perpendicular bisectors of Δ are concurrent
4.2.8	Circumscribed circle
4.2.9	Angle bisectors of Δ are concurrent
4.2.10	Inscribed circle
4.3.1	Regular hexagon
4.3.2-3	36^o, 72^o,72^o triangle
4.3.4	Regular pentagon
4.3.5	Regular polygons
4.4.1-6	Circumference and area of circle
4.4.7-8	Estimating π
5.1.1-4	Construction and uniqueness of division
5.2.1	Theorem of Menelaus
5.2.2	Theorem of Ceva
5.2.3	Theorem of Pappus
5.2.4	Theorem of Desargues
5.2.5	Theorem of Pascal
5.3.1-2	Projective points and lines
5.3.3-4	Theorem of Menelaus in the projective plane
6.1.1	The composition of translations is a translation
6.1.2	Rigid motions preserve straight lines
6.1.3	Agreement at two points $\Rightarrow$ agreement on their line
6.1.4	Agreement at three noncollinear points $\Rightarrow$ agreement on plane
6.1.5	Fixing three noncollinear points $\Rightarrow$ identity
6.2.1-2	Composition of reflections
6.2.3	Composition of rotations
6.2.4	Composition of translations with rotations
6.3.1,3,5	Composition of glide-reflections
6.4.1-2	Every rigid motion is the composition of at most three reflections
6.4.3	The rigid motions are translations, rotations or glide-reflections
6.6.1	The classification of the frieze patterns
6.7.1	There are exactly 17 wallpaper symmetry groups
7.1.1	The effect of inversions on straight lines and circles
7.1.5	Inversions preserve angles
7.2.3	Ptolemy's theorem
7.3.1	Hyperbolic rigid motions
8.1.1	Euler's equation for polyhedra: $v - e + f = 2$
8.2.1	The composition of rotations with intersecting axes is a rotation
8.2.2	The rotation group of the sphere
8.2.3	The rotation group of the tetrahedron
8.2.4	The rotation group of the octahedron