Math A Topic Headings

1 Mathematical Reasoning
(Words not symbols)
1.1 conjunction
1.2 disjunction
1.3 conditional
1.4 converse
1.5 inverse
1.6 contrapositive
1.7 biconditional
1.8 venn diagrams

2 Numbers and Numeration
2.1 real numbers, including irrational roots and pi, undefined terms
2.2 rational approximations of irrational numbers
2.3 closure
2.4 commutativity
2.5 associativity
2.6 distributivity
2.7 identity
2.8 inverses

3 Operations
3.1 a. + , - , ´ , ¸ rationals (including signed numbers and fractions)
3.1 b. + , - , ´ , ¸ irrationals (including signed numbers and fractions)
3.2 simplifying irrationals
3.3 simplifying and evaluating of algebraic expressions and formulas
3.4 powers
3.5 + , - polynomials
3.6 ´ , ¸ monomials
3.7 ´ binomials
3.8 ¸of polynomials by monomials
3.9 factoring (common term, into binomials, difference of two squares)
3.10 integral exponents of integers and expressions (including positive, zero and negative)
3.11 scientific notation
3.12 order of operations
3.13 line and point symmetry
3.14 line reflections
3.15 rotations
3.16 translations
3.17 dilations

4 Modeling/Multiple Representations
4.1 algebraic representations

4.2 sample space, n-tuples and tree diagrams
4.3 classifications of:
4.3a triangles (by sides and angles)
4.3b quadrilaterals (parallelograms, rectangles, rhombi, squares, and trapezoids)
4.3c polygons of 5, 6, 8, 10, and 12 sides
4.4 congruence
4.5 similarity
4.6 angles (acute, right, obtuse, straight, exterior, base angles of isosceles triangle)
4.7 supplementary and complementary angles
4.8 vertical angles
4.9 triangular inequality
4.10 alternate interior angles with transversal through parallel lines
4.11 alternate exterior angles
4.12 corresponding angles
4.13 sum of interior angles of a polygon
4.14 sum of exterior angles of a polygon
4.15 parallel lines
4.16 perpendicular lines
4.17 solids (prism, rectangular solid, pyramid, right circular cylinder, cone and sphere)
4.18 geometric constructions (copy/ bisect segment or angle, construct parallel and perpendicular lines)
4.19 transformations in the plane (line and point reflection, translations, and dilations)
4.20 simple and compound loci
4.21 inequalities
4.22 systems of equations and inequalities
4.23 literal equations

5 Measurement
5.1 lengths of sides and perimeters and circumference
5.2 areas
5.3 volumes
5.4 time and distance
5.5 Pythagorean theorem
5.6 dimensional analysis both metric and customary
5.7 central tendencies (mean, median, and mode)
5.8 sampling, tally, charts, frequency table
5.9 bar graphs/histograms and cumulative frequency histograms, quartiles/percentiles
5.10 circle graphs
5.11 broken line graphs
5.12 stem-and-leaf plots
5.13 box-and-whisker plots
5.14 scatter plots
5.15 right triangle trigonometry (sin, cos, and tan)
5.16 ratios, proportions, percents
5.17 scale drawings
5.18 direct variation

5.19 absolute value
5.20 distance between two points in the plane
5.21 midpoint
5.22 equation of a line, point-slope and slope intercept forms
5.23 slope and intercepts of a line, slopes of parallel and perpendicular lines
5.24 error in measurement and consequence on subsequent calculations
5.25 ratios of perimeters and areas of similar figures, volumes of similar solids

6 Uncertainty
6.1 experimental and theoretical probability
6.2 random variables
6.3 factorial notations
6.4 permutations and combinations
6.5 counting principle
6.6 mutually exclusive and independent events
6.7 probability of single and compound events, probability of the complement of an event

7 Patterns/Functions
7.1 solving simple linear equations algebraically
7.2 equations with parentheses
7.3 variables on both sides of equation
7.4 fractional equations
7.5 decimal equations
7.6 translate among verbal descriptions, tables, equations, and graphs
7.7 graph linear relations: slope and intercept
7.8 solving systems of linear equations and inequalities algebraically and graphically
7.9 solving quadratic equations by factoring
7.10 solving quadratic-linear pair algebraically and graphically
7.11 linear and quadratic graphs (parabola and circle)