

Canadian Math 8–10 (CM2) Correlation for the Western Canada Common Curriculum Framework

Grade 7 Objectives

Code	Objective	Problems
7.N.7	Recognize and illustrate that all fractions and mixed numbers can be represented in decimal form (include terminating and repeating decimals).	BC 33-36
7.N.8	Convert from terminating decimals to fractions.	BC 37-42
7.N.16	Add, subtract, multiply and divide integers concretely, pictorially and symbolically.	BA 1-4, 19-24, 33-38, 49-60, 67-86, 125-126; BB 65-76
7.N.17	Illustrate and explain the order of operations, using paper and pencil or a calculator.	BB 29-56, 141-144
7.N.20	Explain, demonstrate and use proportion in solving problems.	BE 1-2, 7-12
7.S.10	Construct angle bisectors and perpendicular bisectors.	IB 33-54, 79-86
7.S.14	Relate reflections to lines and planes of symmetry.	HC 55-70
	† Note: The CM2 database is not intended to cover grade 7 objectives. Therefore, not all grade 7 objectives are listed.	

Grade 8 Objectives

Code	Objective	Problems
8.N.1	Demonstrate and explain the meaning of a negative exponent, using patterns (limit to base 10).	AA 93-94
8.N.2	Represent any number in scientific notation.	AF 1-20, 49-52, 79-80
8.N.3	Define, compare and order any rational numbers.	BB 1-12, 139-140; BC 11-32; EB 7-8
8.N.4	Demonstrate concretely, pictorially and symbolically that the product of reciprocals is equal to 1.	
8.N.5	Express 3-term ratios in equivalent forms.	BE 33-50
8.N.6	Represent and apply fractional per cents, and per cents greater than 100, in fraction or decimal form, and vice versa.	BF 1-56
8.N.7	Represent square roots concretely, pictorially and symbolically.	
8.N.8	Distinguish between a square root and its decimal approximation as it appears on a calculator.	
8.N.9	Add, subtract, multiply and divide fractions concretely, pictorially and symbolically.	BA 9-18, 29-32, 43-48, 65-66, 89-96, 101-108; BB 13-18, 27-28, 57-76, 101-102, 123-124, 145-146

Objective codes refer to the Grade; Strand (N–Number Concepts, P–Patterns and Relations, S–Shape and Space, and R–Probability and Statistics); and Specific Outcome.

Grade 8 Objectives (Contd)

Code	Objective	Problems
8.N.10	Estimate, compute and verify the sum, difference, product and quotient of rational numbers, using only decimal representations of negative rationals.	AD 47-48; BA 5-8, 25-28, 39-42, 61-64, 87-88, 97-100
8.N.11	Estimate, compute (using a calculator) and verify approximate square roots of whole numbers and of decimals.	CA 65-68, 77-92
8.N.12	Use concepts of rate, ratio, proportion and per cent to solve problems in meaningful contexts.	BE 13-32, 51-52, 59-60; EB 125-126
8.N.13	Calculate combined percentages in a variety of meaningful contexts.	BG 1-66; EB 63-68, 121-124
8.N.14	Derive and apply unit rates.	BE 53-58, 61-62
8.N.15	Express rates and ratios in equivalent forms.	BB 91-96, 107-114, 125-126; BE 3-6
8.P.1	Generalize a pattern arising from a problem-solving context, using mathematical expressions and equations, and verify by substitution.	DA 5-18, 25-40, 43-52
8.P.2	Substitute numbers for variables in expressions, and graph and analyze the relation.	DB 1-24
8.P.3	Translate between an oral or written expression and an equivalent algebraic expression.	BA 109-110; BB 97-100; DC 1-34; DC 41-76; EB 1-6, 137-138
8.P.4	Illustrate the solution process for a two-step, single-variable, first-degree equation, using concrete materials or diagrams.	BB 103-106
8.P.5	Solve and verify one- and two-step, first-degree equations of the form: $\bullet x + a = b$ $\bullet ax = b$ $\bullet \frac{x}{a} = b$ $\bullet ax + b = c$ $\bullet \frac{x}{a} = c$ where a , b and c are integers.	BA 121-124; EA 9-16
8.P.6	Create and solve problems, using first-degree equations.	EB 139-150
8.S.1	Use concrete materials and diagrams to develop the Pythagorean relationship.	IA 1-2
8.S.2	Use the Pythagorean relationship to calculate the measure of the third side, of a right triangle, given the other two sides in 2-D applications.	AE 31-34; IA 3-14, 17-34, 43-44; JD 1-4
8.S.3	Describe patterns, and generalize the relationships by determining the areas and perimeters of quadrilaterals and the areas and circumferences of circles.	GA 1-54, 63-78, 95-102; GB 1-34; HB 1-2
8.S.4	Estimate, measure and calculate the surface area and volume of any right prism or cylinder.	GC 2-10, 17-38, 55-82, 99-108
8.S.5	Estimate and calculate the area of composite figures.	GB 15-16; GD 1-34
8.S.6	Estimate, measure and calculate the surface area of composite 3-D objects.	GD 35-58
8.S.7	Estimate, measure and calculate the volume of composite 3-D objects.	GD 59-86
8.S.8	Identify, investigate and classify quadrilaterals, regular polygons and circles, according to their properties.	GC 11-12; HA 1-58
8.S.9	Build 3-D objects from a variety of representations (nets, skeletons).	GC 109-114

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Grade 8 Objectives (Contd)

Code	Objective	Problems
8.S.10	Represent, analyze and describe enlargements and reductions.	
8.S.11	Draw and interpret scale diagrams.	HC 43-44; HE 1-64
8.S.12	Represent, analyze and describe regions and colouring problems.	HF 63-64
8.S.13	Describe, analyze and solve network problems; e.g., bus routes, a telephone exchange.	HF 1-62, 65-66

Grade 9 Objectives

Code	Objective	Problems
9.N.1	Give examples of numbers that satisfy the conditions of natural, whole, integral and rational numbers, and show that these numbers comprise the rational number system.	BB 19-20, 149-150
9.N.2	Describe, orally and in writing, whether or not a number is rational.	
9.N.3	Give examples of situations where answers would involve the positive (principal) square root, or both positive and negative square roots of a number.	AE 11-24, 53-54; EF 73-76
9.N.4	Illustrate power, base, coefficient and exponent, using rational numbers or variables as bases or coefficients.	AA 1-4
9.N.5	Explain and apply the exponent laws for powers with integral exponents. <ul style="list-style-type: none"> • $x^m \cdot x^n = x^{m+n}$ • $x^m \div x^n = x^{m-n}$ • $(x^m)^n = x^{mn}$ • $(xy)^m = x^m y^m$ • $(x/y)^n = x^n/y^n, y \neq 0$ • $x^0 = 1, x \neq 0$ • $x^{-1} = 1/x^n, x \neq 0$ 	AA 31-90; AB 1-8, 51-62; AC 1-4, 151-154, 171-172
9.N.6	Determine the value of powers with integral exponents, using the exponent laws.	AA 5-30, 91-94; AB 1-50; AE 1-10
9.N.7	Document and explain the calculator keying sequences used to perform calculations involving rational numbers.	ED 1-6
9.N.8	Solve problems, using rational numbers in meaningful contexts.	EB 51-62, 69-96, 109-120; DK 15-72, 75-86
9.N.9	Understand and use the exponent laws to simplify expressions with variable bases and evaluate expressions with numerical bases.	AC 5-106; AC 143-150; EF 35-36, 53-54
9.N.10	Use a calculator to perform calculations involving scientific notation and exponent laws.	AF 21-48, 53-80
9.P.1	Use logic and divergent thinking to present mathematical arguments in solving problems.	AC 175-182; BB 127-132; DA 1-18, 21-50, 57-74; EB 47-50
9.P.2	Model situations that can be represented by first-degree expressions.	DC 25-40; DK 15-46, 61-70, 109-110
9.P.3	Write equivalent forms of algebraic expressions, or equations, with rational	DD 1-58; EA 1-8
9.P.4	Illustrate the solution process for a first-degree, single-variable equation, using concrete materials or diagrams.	

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Grade 9 Objectives (Contd)

Code	Objective	Problems
9.P.5	Solve and verify first-degree, single-variable equations of forms, such as: <ul style="list-style-type: none"> • $ax = b + cx$ • $a(x + b) = c$ • $ax + b = cx + d$ • $a(bx + c) = d(ex + f)$ • $a/x = b$ where a, b, c, d, e and f are all rational numbers (with a focus on integers), and use equations of this type to model and solve problem situations.	DK 71-72, 75-78; EA 17-50,55-72; EB 9-46,51-62, 69-120
9.P.6	Solve, algebraically, first-degree inequalities in one variable, display the solutions on a number line and test the solutions.	EC 1-60, 63-66
9.P.7	Identify constant terms, coefficients and variables in polynomial expressions.	AA 3-4
9.P.8	Evaluate polynomial expressions, given the value(s) of the variable(s).	BA 115-120; BB 81-90, 121-122, 133-138; ED 7-74; EE 65-68
9.P.9	Represent and justify the addition and subtraction of polynomial expressions, using concrete materials and diagrams.	
9.P.10	Perform the operations of addition and subtraction on polynomial expressions.	EE 1-4, 5-68
9.P.11	Represent multiplication, division and factoring of monomials, binomials, and trinomials of the form $x^2 + bx + c$, using concrete materials and diagrams.	
9.P.12	Find the product of two monomials, a monomial and a polynomial, and two binomials.	EE 17-20; EF 15-36; EG 1-102
9.P.13	Determine equivalent forms of algebraic expressions by identifying common factors and factoring trinomials of the form $x^2 + bx + c$.	EF 1-14; FA 5-8, 91-92, 107-108; FB 47-48, 51-52
9.P.14	Find the quotient when a polynomial is divided by a monomial.	EF 37-58
9.S.1	Explain the meaning of sine, cosine and tangent ratios in right triangles.	JA 1-116
9.S.2	Demonstrate the use of trigonometric ratios (sine, cosine and tangent) in solving right triangles.	JB 3-20; JB 23-32, 37-38, 43-78; JD 13-14, 17-20
9.S.3	Calculate an unknown side or an unknown angle in a right triangle, using appropriate technology.	
9.S.4	Model and then solve given problem situations involving only one right triangle.	JF 1-22, 35-58
9.S.5	Relate expressions for volumes of pyramids to volumes of prisms, and volumes of cones to volumes of cylinders.	GC 1-2, 13-16, 39-54, 83-94; GD 49-50, 71-74, 85-86
9.S.6	Calculate and apply the rate of volume to surface area to solve design problems in three dimensions.	
9.S.7	Calculate and apply the rate of area to perimeter to solve design problems in two dimensions.	AE 35-38; GA 83-102
9.S.8	Recognize when, and explain why, two triangles are similar, and use the properties of similar triangles to solve problems.	IC 1-2, 13-26, 29-94, 135-138
9.S.9	Recognize when, and explain why, two triangles are congruent, and use the properties of congruent triangles to solve problems.	ID 1-70
9.S.10	Relate congruence to similarity in the context of triangles.	
9.S.11	Draw the plan and elevations of a 3-D object from sketches and models.	

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Grade 9 Objectives (Contd)

Code	Objective	Problems
9.S.12	Sketch or build a 3-D object, given its plan and elevation views.	
9.S.13	Recognize and draw the locus of points in solving practical problems.	
9.S.14	Draw the image of a 2-D shape as a result of: a) a single transformation b) a dilatation c) combinations of translations and/or reflections.	HC 45-54, 71-82; HD 27-200
9.S.15	Identify the single transformation that connects a shape with its image.	HD 1-26
9.S.16	Demonstrate that a triangle and its dilatation image are similar.	
9.S.17	Demonstrate the congruence of a triangle with its: a) translation image b) rotation image c) reflection image.	

Grade 10 Objectives

Code	Objective	Problems
10.N.1	Use words and algebraic expressions to describe the data and the interrelationships in a table with rows that are not related recursively (not calculated from previous data).	BB 115-120, 145-148; BG 65-66
10.N.2	Use words and algebraic expressions to describe the data and the interrelationships in a table with rows that are related recursively (calculated from previous data).	
10.N.3	Classify numbers as natural, whole, integer, rational or irrational, and show that these number sets are nested within the real number system.	BB 19-20; BC 1-6, 59-70
10.N.4	Use approximate representations of irrational numbers.	BC 7-8
10.N.5	Communicate a set of instructions used to solve an arithmetic problem.	CD 85-86
10.N.6	Perform arithmetic operations on irrational numbers, using appropriate decimal approximations.	AE 39-46; CA 59-92
10.N.7	Create and modify tables from both recursive and nonrecursive situations.	
10.N.8	Use and modify a spreadsheet template to model recursive situations.	
10.N.9	Solve problems involving combinations of tables, using: a) addition or subtraction of two tables b) multiplication of a table by a real number c) spreadsheet functions and templates.	
10.N.10	Explain and apply the exponent laws for powers of numbers and for variables with rational exponents.	CB 1-58; EB 127-128
10.N.11	Perform operations on irrational numbers of monomial and binomial form, using exact values.	AC 167-170; AE 47-50; CA 1-58; CC 1-78; GA 79-82; IA 15-16, 35-42, 45-46; JC 93-104; JD 49-64
10.N.12	Solve consumer problems, including: a) wages earned in various situations b) property taxation c) exchange rates d) unit prices.	BE 53-60

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Grade 10 Objectives (Contd)

Code	Objective	Problems
10.N.13	Reconcile financial statements including: a) cheque books with bank statements b) cash register tallies with daily receipts.	
10.N.14	Solve budget problems, using graphs and tables to communicate solutions.	GB 33-34
10.N.15	Plot and describe data of exponential form, using appropriate scales.	
10.N.16	Solve investment and credit problems involving simple and compound interest.	BH 1-76
10.N.17	Show an understanding of matrices and perform the operations of addition, scalar multiplication and matrix multiplication.	
10.N.18	Solve problems, using the operations of addition, subtraction, scalar multiplication and matrix multiplication on matrices.	
10.N.19	Use matrices and matrix operations to model and to solve consumer, network and schedule problems.	
10.N.20	Design or modify a financial spreadsheet template to allow users to input their own variables.	
10.N.21	Use spreadsheets to analyze renting or buying an increasing asset (home) under different sets of circumstances.	
10.N.22	Use spreadsheets to analyze leasing or buying a decreasing asset (vehicle, computer) under different sets of circumstances.	
10.N.23	Use spreadsheet(s) to analyze an investment or life insurance portfolio, applying such concepts as capital gains, interest rate, inflation rate, risk, total rate of return and after-tax rate of return.	
10.N.24	Analyze car or house insurance needs and premiums, using such concepts as loss, probability of loss, compulsory coverage, optional coverage, deductible and claims record.	
10.P.1	Generate number patterns exhibiting arithmetic growth.	DA 61-64, 73-80
10.P.2	Use expressions to represent general terms and sums for arithmetic growth, and apply these expressions to solve problems.	DA 19-20, 53-56, 67-68
10.P.3	Relate arithmetic sequences to linear functions defined over the natural numbers.	
10.P.4	Generate number patterns exhibiting geometric growth.	
10.P.5	Differentiate between inductive and deductive reasoning.	
10.P.6	Explain and apply connecting words, such as “and”, “or” and “not”, to solve problems.	
10.P.7	Use examples and counterexamples to analyze conjectures.	
10.P.8	Distinguish between an “if-then” proposition, its converse and its contrapositive.	
10.P.9	Prove assertions in a variety of settings, using direct and indirect reasoning.	EB 133-136; ID 73-106
10.P.10	From cyclic data produce a periodic graph.	
10.P.11	Predict results from graphs that represent periodic events.	

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Grade 10 Objectives (Contd)

Code	Objective	Problems
10.P.12	Describe periodic events, including sinusoidal curves, using correct terminology.	
10.P.13	Collect sinusoidal data; sketch the graph of the data; and, using degrees, represent the data with an equation of the form: • $y = a \sin(kt) + c$ OR • $y = a \cos(kt) + c$.	
10.P.14	Develop sinusoidal equations, using degrees, to represent periodic behaviour.	
10.P.15	Use technology to generate and graph finite or infinite sequences whose recursive definition may or may not be given.	
10.P.16	Identify sequences that appear to be: a) divergent b) convergent c) oscillating d) static.	
10.P.17	Construct a fractal pattern by repeatedly applying a procedure to a geometric figure.	
10.P.18	Use the concept of self-similarity to compare and/or predict the perimeters, areas and volumes of fractal patterns.	
10.P.19	Derive and apply expressions to represent general terms and sums for geometric growth and to solve problems.	
10.P.20	Connect geometric sequences to exponential functions over the natural numbers.	
10.P.21	Estimate values of expressions for infinite geometric processes.	
10.P.22	Factor polynomial expressions of the form $ax^2 + bx + c$, and $a^2x^2 - b^2y^2$.	FA 1-106; FB 1-114
10.P.23	Find the product of polynomials.	EG 1-74, 121-124; EH 1-56
10.P.24	Divide a polynomial by a binomial, and express the result in the forms: • $P/D = Q + R/D$ • $P = DQ + R$ • $P(x) = D(x)Q(x) + R$.	EF 59-64
10.P.25	Determine equivalent forms of simple rational expressions with polynomial numerators, and denominators that are monomials, binomials or trinomials that can be factored.	EF 65-76; FC 15-78; FD 15-28
10.P.26	Determine the nonpermissible values for the variable in rational expressions.	FC 1-14; FD 1-6
10.P.27	Perform the operations of addition, subtraction, multiplication and division on rational expressions.	FD 7-14, 29-66; FF 1-56
10.P.28	Find and verify the solutions of rational equations.	EA 51-54; FG 9-26
10.P.29	Graph linear inequalities, in two variables.	DH 1-68; EC 61-62, 67-90
10.P.30	Solve systems of linear equations, in two variables: a) algebraically (elimination and substitution) b) graphically.	DG 129-146; DI 71-72; DK 1-6, 11-14, 73-74, 87-92, 99-100
10.P.31	Solve nonlinear equations, using a graphing tool.	DK 93-98
10.P.32	Solve nonlinear equations: a) by factoring b) graphically.	
10.P.33	Use the Remainder Theorem to evaluate polynomial expressions and the Factor Theorem to determine factors of polynomials.	DK 107-108
10.P.34	Determine the solution to a system of nonlinear equations, using technology as appropriate.	EG 103-120

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Grade 10 Objectives (Contd)

Code	Objective	Problems
10.P.35	Solve systems of linear equations, in three variables: a) algebraically b) with technology.	
10.P.36	Solve, graphically, systems of linear inequalities, in two variables, using technology.	DH 69-106
10.P.37	Design and solve linear and nonlinear systems, in two variables, to model problem situations.	DH 107-110
10.P.38	Apply linear programming to find optimal solutions to decision-making problems.	
10.P.39	Solve exponential equations having bases that are powers of one another.	AC 113-118, 123-142, 157-166
10.P.40	Solve and verify exponential and logarithmic equations and identities.	AC 107-112, 119-122, 155-156, 173-174
10.P.41	Distinguish between degree and radian measure, and solve problems, using both.	
10.P.42	Determine the exact and the approximate values of trigonometric ratios for any multiples of 0° , 30° , 45° , 60° and 90° and 0 , $\frac{\pi}{6}$, $\frac{\pi}{4}$, $\frac{\pi}{3}$, $\frac{\pi}{2}$.	AE 55-56; JC 1-126; JF 1-4
10.P.43	Solve first and second degree trigonometric equations over a domain of length 2π . a) algebraically b) graphically.	
10.P.44	Determine the general solutions to trigonometric equations where the domain is the set of real numbers.	
10.P.45	Verify trigonometric identities: a) numerically for any particular case b) algebraically for general cases c) graphically.	
10.P.46	Use sum, difference and double angle identities for sine and cosine to verify and simplify trigonometric expressions.	
10.P.47	Plot linear and nonlinear data, using appropriate scales.	
10.P.48	Represent data, using function models.	DB 1-98
10.P.49	Use a graphing tool to draw the graph of a function from its equation.	
10.P.50	Describe a function in terms of: a) ordered pairs b) a rule, in word or equation form c) a graph.	DF 67-72; DK 109-114
10.P.51	Use function notation to evaluate and represent functions.	AD 29-46
10.P.52	Determine the domain and range of a relation from its graph.	
10.P.53	Determine the following characteristics of the graph of a linear function, given its equation: a) intercepts b) slope c) domain d) range.	DB 37-38; DB 91-92; DG 1-8, 39-78, 147-148, 153-154; EB 129-132
10.P.54	Perform operations on functions and compositions of functions.	
10.P.55	Determine the inverse of a function.	
10.P.56	Use direct variation and arithmetic sequences as applications of linear functions.	DK 57-70, 109-110; EB 119-120
10.P.57	Determine the following characteristics of the graph of a quadratic function: a) vertex b) domain and range c) axis of symmetry d) intercepts.	

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Grade 10 Objectives (Contd)

Code	Objective	Problems
10.P.58	Connect algebraic and graphical transformations of quadratic functions, using completing the square as required.	
10.P.59	Model real-world situations, using quadratic functions.	AE 61-64; FE 67-74; FG 1-96
10.P.60	Solve quadratic equations, and relate the solutions to the zeros of a corresponding quadratic function, using: a) factoring b) the quadratic formula c) graphing.	AE 25-30, 51-52; FE 1-92
10.P.61	Determine the character of the real and non-real roots of a quadratic equation, using: a) the discriminant in the quadratic formula b) graphing.	
10.P.62	Describe, graph and analyze polynomial and rational functions, using technology.	
10.P.63	Formulate and apply strategies to solve absolute value equations, radical equations, rational equations and inequalities.	AE 57-60; BD 1-108; CD 1-86
10.P.64	Graph and analyze an exponential function, using technology.	
10.P.65	Model, graph and apply exponential functions to solve problems.	AD 1-54
10.P.66	Change functions from exponential form to logarithmic form and vice versa.	
10.P.67	Use logarithms to model practical problems.	
10.P.68	Explain the relationship between the laws of logarithms and the laws of exponents.	
10.P.69	Graph and analyze logarithmic functions with and without technology.	
10.P.70	Describe the three primary trigonometric functions as circular functions with reference to the unit circle and an angle in standard position.	
10.P.71	Draw (using technology), sketch and analyze the graphs of sine, cosine and tangent functions, for: a) amplitude, if defined b) period c) domain and range d) asymptotes, if any e) behaviour under transformations.	
10.P.72	Draw (using technology) and analyze the graphs of secant, cosecant and cotangent functions, for: a) period b) domain and range c) asymptotes d) behaviour under transformations.	
10.P.73	Use trigonometric functions to model and solve problems.	
10.S.1	Calculate the volume and surface area of a sphere, using formulas that are provided.	GC 95-98; GD 51-52, 57-58, 67-70, 75-78, 79-82
10.S.2	Determine the relationships among linear scale factors, areas, the surface areas and the volumes of similar figures and objects.	GA 55-62; HC 47-50; IC 3-12, 27-28, 95-134
10.S.3	Enlarge or reduce a dimensioned object, according to a specified scale.	
10.S.4	Solve problems involving two right triangles.	IA 47-66; JB 1-2, 21-22, 33-36, 39-42, 79-82; JC 39-92; JF 23-34, 59-64

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Grade 10 Objectives (Contd)

Code	Objective	Problems
10.S.5	Extend the concepts of sine and cosine for angles from 0° to 180° .	
10.S.6	Apply the sine and cosine laws, excluding the ambiguous case, to solve problems.	JD 1-48, 65-76
10.S.7	Solve problems involving ambiguous case triangles in 3-D and 2-D.	
10.S.8	Select and apply appropriate instruments, units of measure (in SI and Imperial systems) and measurement strategies to find lengths, areas and volumes.	
10.S.9	Analyze the limitations of measuring instruments and measurement strategies, using the concepts of precision and accuracy.	
10.S.10	Solve problems involving length, area, volume, time, mass and rates derived from these.	FE 67-74; FG 55-72; HB 1-58; IE 45-60
10.S.11	Interpret drawings, and use the information to solve problems.	HB 7-8
10.S.12	Calculate maximum and minimum values, using tolerances, for lengths, areas and volumes.	
10.S.13	Solve problems involving percentage error when input variables are expressed with percentage errors.	
10.S.14	Design an appropriate measuring process or device to solve a problem.	
10.S.15	Use dimensions and unit prices to solve problems involving perimeter, area and volume.	HB 9-10, 19-20, 49-50, 57-58
10.S.16	Solve problems involving estimation and costing for objects, shapes or processes when a design is given.	
10.S.17	Design an object, shape, layout or process within a specified budget.	
10.S.18	Use simplified models to estimate the solutions to complex measurement problems.	HF 65-66
10.S.19	Solve problems involving distances between points in the coordinate plane.	DF 1-40, 73-76; IE 1-20
10.S.20	Solve problems involving midpoints of line segments.	DF 41-48; IB 1-10; IE 21-32
10.S.21	Solve problems involving rise, run and slope of line segments.	DB 25-28, 35-36, 49-52, 61-62, 83-86, 91-92, 95-96; DG 9-24; DI 1-16
10.S.22	Determine the equation of a line, given information that uniquely determines the line.	DE 1-64; DF 49-72; DG 31-38, 79-112, 147-148, 153-154; DI 17-18, 73-74; DJ 1-46, 65-72; DK 7-10, 101-106;
10.S.23	Solve problems using slopes of: a) parallel lines b) perpendicular lines.	DG 25-30, 113-124, 125-128, 149-152, 155-158; DI 19-70; DJ 47-64; IE 33-44
10.S.24	Solve problems involving distances between points and lines.	
10.S.25	Verify and prove assertions in plane geometry, using coordinate geometry.	ID 71-72; IE 61-82

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Grade 10 Objectives (Contd)

Code	Objective	Problems
10.S.26	Use technology and measurement to confirm and apply the following properties to particular cases: a) the perpendicular from the centre of a circle to a chord bisects the chord; b) the measure of the central angle is equal to twice the measure of the inscribed angle subtended by the same arc; c) the inscribed angles subtended by the same arc are congruent; d) the angle inscribed in a semicircle is a right angle; e) the opposite angles of a cyclic quadrilateral are supplementary; f) a tangent to a circle is perpendicular to the radius at the point of tangency; g) the tangent segments to a circle, from any external point, are congruent; h) the angle between a tangent and a chord is equal to the inscribed angle on the opposite side of the chord; i) the sum of the interior angles of an n -sided polygon is $(2n - 4)$ right angles.	
10.S.27	Use properties of circles and polygons to solve design and layout problems.	
10.S.28	Prove the following general properties, using established concepts and theorems: a) the perpendicular bisector of a chord contains the centre of the circle; b) the measure of the central angle is equal to twice the measure of the inscribed angle subtended by the same arc (for the case when the centre of the circle is in the interior of the inscribed angle); c) the inscribed angles subtended by the same arc are congruent; d) the angle inscribed in a semicircle is a right angle; e) the opposite angles of a cyclic quadrilateral are supplementary; f) a tangent to a circle is perpendicular to the radius at the point of tangency; g) the tangent segments to a circle from any external point are congruent; h) the angle between a tangent and a chord is equal to the inscribed angle on the opposite side of the chord; i) the sum of the interior angles of an n -sided polygon is $(2n - 4)$ right angles.	
10.S.29	Solve problems, using a variety of circle properties, and justify the solution strategy used.	
10.S.30	Use and give 3-D and 2-D examples of vector terminology and notation, including: a) vector (direction, magnitude) b) scalar c) unit vector d) collinear vectors e) opposite vectors f) parallel vectors g) resultant vectors.	JE 1-6, 9-28
10.S.31	Assign meaning to the multiplication of a vector by a scalar.	JE 7-8, 37-40
10.S.32	Perform vector additions and subtractions, using triangle or parallelogram methods.	JE 7-8, 29-68
10.S.33	Determine the magnitude and direction of a resultant vector, using triangle, parallelogram or component methods.	JF 21-22, 63-64
10.S.34	Use vector diagrams and trigonometry to analyze and solve practical problems in 3-D and 2-D.	
10.S.35	Classify conic sections according to shape.	
10.S.36	Classify conic sections according to a given equation in general or standard (completed square) form (vertical or horizontal axis of symmetry only).	
10.S.37	Convert a given equation of a conic section from general to standard form and vice versa.	

Objective codes refer to the Grade; Strand (N–Number Concepts, P–Patterns and Relations, S–Shape and Space, and R–Probability and Statistics); and Specific Outcome.