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MM	SB	[Math’s Mate - Mathematical strand]
Question	Skill No.	Skill Builder - Skill description

1.		[Long \times, \div]	1
	1.1	Multiplying a large number by a multiple of 10.	
	1.2	Multiplying a large number by a two-digit number.	
	1.3	Multiplying a large number by a large multiple of 10.	
	1.4	Dividing a large number by a single digit.	
	1.5	Dividing a large number by a power of 10.	
	1.6	Dividing a large number by a multiple of 10.	
	1.7	Dividing a whole number by a two-digit number.	
	1.8	Dividing whole numbers - answer as a terminating decimal.	
	1.9	Dividing whole numbers - answer as a repeating decimal.	
2.		[Decimal $+, -$]	12
	2.1	Adding decimal numbers.	
	2.2	Subtracting decimal numbers.	
	2.3	Subtracting a decimal number from a whole number.	
	2.4	Adding and subtracting decimal numbers.	
3.		[Decimal \times, \div]	20
	3.1	Multiplying a decimal number by a whole number.	
	3.2	Multiplying a decimal number by powers and multiples of 10.	
	3.3	Multiplying a decimal number by a negative power of 10 (e.g. 0.1).	
	3.4	Multiplying a decimal number by a decimal number.	
	3.5	Dividing a decimal number by a whole number.	
	3.6	Dividing a decimal number by a power of 10.	
	3.7	Dividing a decimal number by a negative power of 10 (e.g. 0.1).	
	3.8	Dividing a decimal number by a decimal number.	
	3.9	Dividing a whole number by a decimal number.	

4.	[Fraction +,-]	29
4.1	Adding fractions with the same denominator.	
4.2	Subtracting fractions with the same denominator.	
4.3	Adding mixed numbers with the same denominator.	
4.4	Subtracting mixed numbers with the same denominator.	
4.5	Subtracting a fraction or a mixed number from a whole number.	
4.6	Adding fractions with different denominators - one denominator divides evenly into the other denominator.	
4.7	Adding fractions with different denominators - the GCF of the denominators is 1 (e.g. 2 and 3, 5 and 6).	
4.8	Adding fractions with different denominators - the denominators have common factors $\neq 1$ (e.g. 8 and 12).	
4.9	Subtracting fractions with different denominators - one denominator divides evenly into the other denominator.	
4.10	Subtracting fractions with different denominators - the GCF of the denominators is 1 (e.g. 2 and 3, 5 and 6).	
4.11	Subtracting fractions with different denominators - the denominators have common factors $\neq 1$ (e.g. 8 and 12).	
4.12	Adding and subtracting fractions with different denominators.	
4.13	Adding or subtracting mixed numbers with different denominators.	
5.	[Fraction \times, \div]	46
5.1	Multiplying a fraction by a whole number.	
5.2	Multiplying two fractions.	
5.3	Multiplying a mixed number by a fraction or by another mixed number.	
5.4	Multiplying three fractions.	
5.5	Dividing two fractions.	
5.6	Dividing a whole number by a fraction.	
5.7	Dividing a fraction by a whole number.	
5.8	Dividing a mixed number by a fraction or by another mixed number.	
6.	[Percents]	56
6.1	Estimating a percent.	
6.2	Finding the remaining percent.	
6.3	Finding a percent of a multiple of 100.	
6.4	Finding a percent of any number.	
6.5	Finding a percent of a quantity.	
6.6	Finding a percent of a decimal number.	
6.7	Working with more than 100%.	
6.8	Finding a number knowing a percent of that number.	
6.9	Increasing an amount by a percent.	
6.10	Decreasing an amount by a percent.	
6.11	Increasing or decreasing a quantity by a percent.	
6.12	Finding a percent change.	
7.	[Decimals / Fractions / Percents]	71
7.1	Ordering decimal numbers.	
7.2	Ordering fractions.	
7.3	Finding equivalent fractions.	
7.4	Estimating outcomes.	
7.5	Writing a decimal number as a fraction in simplest form.	
7.6	Writing a fraction as a terminating decimal.	
7.7	Writing a fraction as a repeating decimal.	
7.8	Writing a percent as a fraction in simplest form.	
7.9	Writing a fraction as a percent.	
7.10	Writing a decimal number as a percent.	
7.11	Writing a percent as a decimal number.	
7.12	Comparing and ordering decimals, fractions and percents.	
7.13	Calculating simple interest.	
7.14	Calculating compound interest/growth.	
8.	[Integers]	85
8.1	Adding integers.	
8.2	Subtracting integers.	
8.3	Multiplying integers.	
8.4	Dividing integers.	
8.5	Adding and subtracting integers.	
8.6	Multiplying and dividing integers.	
8.7	Adding and subtracting integers using order of operations.	
8.8	Multiplying and dividing integers using order of operations.	

9.	[Rates / Ratios]	93
9.1	Simplifying ratios.	
9.2	Finding the ratio of two or more quantities.	
9.3	Deciding if two ratios form a proportion.	
9.4	Finding the missing term in a proportion.	
9.5	Solving proportions.	
9.6	Dividing a quantity into a given ratio.	
9.7	Working with ratio scales.	
9.8	Finding the rate (speed).	
9.9	Finding the distance traveled.	
9.10	Finding the time taken to travel a distance.	
9.11	Finding other rates.	
9.12	Comparing rates.	
10.	[Exponents]	107
10.1	Evaluating whole numbers in exponential form.	
10.2	Evaluating powers with fraction bases.	
10.3	Raising a negative number to a power.	
10.4	Multiplying powers with the same base.	
10.5	Dividing powers with the same base.	
10.6	Multiplying powers with coefficients and with the same base.	
10.7	Dividing powers with coefficients and with the same base.	
10.8	Raising a product or a quotient to a power.	
10.9	Raising a power to another power.	
10.10	Simplifying exponential expressions.	
10.11	Raising a number or a variable to a negative power.	
10.12	Simplifying expressions involving negative exponents.	
11.	[Square Roots]	119
11.1	Calculating square roots of perfect squares.	
11.2	Calculating square roots of perfect squares in fraction form.	
11.3	Calculating square roots of perfect squares in decimal form.	
11.4	Multiplying integers with square roots of perfect squares.	
11.5	Multiplying square roots of perfect squares.	
11.6	Dividing square roots of perfect squares.	
11.7	Adding and subtracting square roots of perfect squares.	
11.8	Estimating square roots.	
11.9	Multiplying radicals.	
11.10	Dividing radicals.	
11.11	Simplifying radicals to simplest form.	
11.12	Adding and subtracting radicals.	
11.13	Simplifying expressions with radicals.	
12.	[Exploring Number]	132
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12.2	Using "order of operations" involving powers and (), ×, ÷, + or –	
12.3	Rounding decimal numbers to a given place.	
12.4	Writing rational approximations of simple irrational numbers.	
12.5	Writing very large and very small numbers in scientific notation.	
12.6	Expressing numbers in standard form.	
12.7	Using "order of operations" involving negative integers.	
12.8	Recognizing whole numbers and integers.	
12.9	Recognizing rational numbers.	
12.10	Recognizing irrational numbers.	
12.11	Recognizing classes of numbers.	
12.12	Comparing and ordering real numbers.	

13.	[Number Patterns]	144
13.1	Completing number patterns by adding, subtracting, multiplying or dividing by the same positive integer.	
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13.4	Completing number patterns by multiplying or dividing by the same integer.	
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13.6	Finding a term in a number pattern.	
13.7	Finding a particular term of a sequence given its general rule.	
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14.5	Simplifying expressions by multiplying terms.	
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15.	[Algebra - Substitution]	160
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15.4	Substituting into formulae.	
15.5	Substituting into rules, expressions and formulae with brackets.	
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15.7	Substituting into more complex rules and expressions.	
15.8	Substituting into more complex formulae.	
15.9	Substituting into quadratic rules.	
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16.2	Expanding brackets in expressions like $a(a + 1)$	
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16.4	Expanding brackets in expressions like $-2a(b + 1)$	
16.5	Expanding and simplifying expressions.	
16.6	Expanding and simplifying more complex expressions.	
16.7	Expanding brackets in expressions like $(a + 1)(a + 2)$	
16.8	Expanding brackets in perfect squares like $(a + b)^2$	
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17.3	Factoring to simplify expressions involving large numbers.	
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17.5	Factoring negative terms.	
17.6	Factoring by finding binomial factors.	
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18.	[Algebra - Equations]	187
18.1	Solving one-step equations by using the inverse operations of + and -	
18.2	Solving one-step equations by using the inverse operations of · and ÷	
18.3	Solving two-step equations by using the inverse operations of +, -, · and ÷	
18.4	Solving equations by first expanding the brackets.	
18.5	Solving equations with variables in more than one place.	
18.6	Solving equations involving fractions.	
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18.8	Solving quadratic equations.	
18.9	Solving systems of equations.	
18.10	Solving quadratic equations by factoring.	

19.	[Algebra - Graphs & Functions]	198
19.1	Completing a table of values for a linear function.	
19.2	Deciding if a point is on a line of a given rule.	
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19.4	Graphing linear equations on a coordinate plane, by first completing a table of values.	
19.5	Finding the x -intercept and the y -intercept of a linear graph.	
19.6	Sketching linear equations by finding the x -intercept and the y -intercept.	
19.7	Writing expressions to represent real-life situations.	
19.8	Interpreting distance-time graphs.	
19.9	Finding the slope of a linear graph.	
19.10	Finding the slope, the x -intercept and the y -intercept of an equation written in the slope-intercept form $y = mx + b$.	
19.11	Interpreting graphs describing other rates.	
19.12	Finding the slope of a linear graph when two points are given.	
19.13	Finding the equation of a straight line when two points are given.	
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19.15	Solving a system of equations by graphing them on a Cartesian plane.	
19.16	Completing a table of values for a non-linear function.	
19.17	Graphing non-linear functions on a coordinate plane, by first completing a table of values.	
20.	[Shapes]	226
20.1	Recognizing polygons, quadrilaterals and triangles.	
20.2	Classifying triangles.	
20.3	Describing the properties of quadrilaterals.	
20.4	Describing the properties of three-dimensional shapes.	
20.5	Using Euler's formula for polyhedra.	
20.6	Recognizing line symmetry in two-dimensional shapes.	
20.7	Recognizing nets of three-dimensional shapes.	
20.8	Recognizing the shape of cross sections through three-dimensional shapes.	
20.9	Drawing two-dimensional views of three-dimensional shapes.	
20.10	Recognizing rotational symmetry in two-dimensional shapes.	
20.11	Finding angle size inside a cube.	
21.	[Angles]	237
21.1	Choosing the correct terms related to angles.	
21.2	Finding the complement and the supplement of a given angle.	
21.3	Working with vertical angles.	
21.4	Working with angles in a triangle.	
21.5	Finding the exterior angle of a triangle.	
21.6	Working with angles in a quadrilateral.	
21.7	Working with pairs of alternate interior, same-side interior and corresponding angles.	
21.8	Finding the value of an angle in a variety of diagrams.	
21.9	Finding the value of an angle in a circle.	
22.	[Exploring Geometry]	247
22.1	Naming and labeling geometric plane shapes.	
22.2	Sketching parallel and perpendicular lines to given lines.	
22.3	Describing location on a map.	
22.4	Recognizing basic transformations of two-dimensional shapes.	
22.5	Drawing translations, reflections and rotations on a grid or coordinate plane.	
22.6	Recognizing and drawing enlargements and reductions on a grid or a coordinate plane.	
22.7	Working with scales on a map.	
22.8	Finding the scale factor of a model.	
22.9	Recognizing congruence of two-dimensional shapes.	
22.10	Recognizing similarity of two-dimensional shapes.	
22.11	Recognizing elements of circle geometry.	

23.	[Measuring]	260
23.1	Reading scales.	
23.2	Choosing appropriate units and measurements.	
23.3	Measuring with accuracy and tolerating error.	
23.4	Calculating elapsed time and reading timetables.	
23.5	Converting units of measurement for length.	
23.6	Converting units of measurement for mass.	
23.7	Converting units of measurement for capacity and volume.	
23.8	Converting units of measurement for area.	
23.9	Converting units of measurement between volume and capacity.	
24.	[Perimeter]	269
24.1	Calculating the perimeter of polygons.	
24.2	Calculating the perimeter of composite shapes.	
24.3	Calculating the circumference of circles.	
24.4	Calculating the perimeter of composite circular shapes.	
24.5	Expressing the perimeter of two-dimensional shapes in algebraic form.	
24.6	Finding an unknown side length when the perimeter of a shape is given.	
24.7	Finding the perimeter of a shape when the height, or the diagonal, or the area of that shape is given.	
25.	[Area]	278
25.1	Calculating the area of squares and rectangles.	
25.2	Calculating the area of parallelograms.	
25.3	Calculating the area of triangles.	
25.4	Calculating the area of rhombi and kites.	
25.5	Calculating the area of trapezoids.	
25.6	Calculating the area of composite shapes.	
25.7	Calculating the area of circles.	
25.8	Calculating the area of composite circular shapes.	
25.9	Expressing the area of two-dimensional shapes in algebraic form.	
25.10	Finding the area of a shape when the height, or the diagonal, or the perimeter of that shape is given.	
26.	[Surface Area]	291
26.1	Calculating the surface area of rectangular prisms and cubes by using nets.	
26.2	Calculating the surface area of rectangular prisms.	
26.3	Calculating the surface area of rectangular composite solids.	
26.4	Calculating the surface area of triangular prisms.	
26.5	Calculating the surface area of pyramids.	
26.6	Calculating the surface area of composite solids.	
26.7	Calculating the surface area of basic three-dimensional round solids.	
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27.	[Volume]	306
27.1	Calculating the volume of square and rectangular prisms.	
27.2	Calculating the volume of other prisms.	
27.3	Calculating the volume of pyramids.	
27.4	Calculating the volume of basic three-dimensional round solids.	
27.5	Expressing the volume of three-dimensional solids in algebraic form.	
27.6	Calculating volume in relation to capacity.	
27.7	Calculating volume in relation to length and area.	
27.8	Calculating the volume of composite solids.	

28.	[Pythagorean Theorem / Trigonometry]	315
28.1	Recognizing Pythagorean theorem.	
28.2	Solving quadratic equations.	
28.3	Finding the length of the hypotenuse when the lengths of the legs of a right triangle are given.	
28.4	Finding the length of a leg when the lengths of the other leg and the hypotenuse of a right triangle are given.	
28.5	Applying Pythagorean theorem.	
28.6	Finding a side length in isosceles right triangles.	
28.7	Applying Pythagorean theorem to find the perimeter of two-dimensional shapes.	
28.8	Applying Pythagorean theorem to find the area of two-dimensional shapes.	
28.9	Applying Pythagorean theorem in a variety of two-dimensional diagrams.	
28.10	Applying Pythagorean theorem to find the distance between two points located on a coordinate plane.	
28.11	Recognizing trigonometric functions (sine, cosine, tangent).	
28.12	Calculating the value of basic trigonometric ratios in right triangles.	
28.13	Finding an unknown side of a right triangle when a trigonometric ratio of an angle and another side of the triangle are given.	
28.14	Calculating the value of trigonometric ratios in right triangles by first applying Pythagorean theorem.	
29.	[Statistics]	333
29.1	Calculating the mean of sets of data.	
29.2	Calculating the median of sets of data.	
29.3	Calculating the mode and range of sets of data.	
29.4	Working with the mean, median and mode of sets of data.	
29.5	Interpreting data in column or bar graphs.	
29.6	Interpreting data in circle graphs.	
29.7	Interpreting data in stack graphs.	
29.8	Interpreting data in line graphs.	
29.9	Interpreting histograms.	
29.10	Interpreting frequency tables.	
29.11	Interpreting stem-and-leaf plots.	
29.12	Calculating the upper quartile (UQ), lower quartile (LQ) and interquartile range (IQR) for box-and-whisker plots, frequency tables and stem-and-leaf plots.	
29.13	Drawing box-and-whisker plots.	
29.14	Interpreting scatter plots.	
30.	[Probability]	351
30.1	Describing the probability of events using probability scales.	
30.2	Calculating the probability of simple events.	
30.3	Recognizing the probability of complementary events.	
30.4	Calculating the probability of multiple events by using tree diagrams to represent the sample spaces.	
30.5	Calculating the probability of multiple events by using tree diagrams or two-way tables to represent the sample spaces.	
30.6	Calculating the probability of mutually exclusive events.	
30.7	Calculating the probability of non-exclusive events.	
30.8	Finding the number of expected successful events.	
30.9	Calculating the probability of independent events.	
30.10	Completing probability tree diagrams.	
30.11	Calculating the probability of events represented by Venn diagrams.	
30.12	Calculating the probability of events represented by two-way tables.	

