



Michigan State Standards / Excel Math Correlation
6th Grade

Michigan Grade Level Expectations	Excel Math Lesson Numbers	Stretch Lesson Numbers Activity Number
Strand 1 Number & Operations		
Multiply and divide fractions		
N.MR.06.01 Understand division of fractions as the inverse of multiplication, e.g., if $4/5 \div 2/3 = \blacksquare$, then $2/3 \cdot \blacksquare = 4/5$ so $\blacksquare = 4/5 \cdot 3/2 = 12/10$.	*5, 18, 19, 48, 118, 120, 128, 129, 142, 153 Multiples: 1, 9, 17, 26, 64, 103, 132 Factors, Prime, Composite: 50, 56, 64	50 Multiples: 67, 92, 139 Factors, Prime: 72, 88, 90, 99
N.FL.06.02 Given an applied situation involving dividing fractions, write a mathematical statement to represent the situation.	*5, 19, *48, 57, *118, 120, 142, 153	101, 143 Add / Subtract: 49, 110
N.MR.06.03 Solve for the unknown in equations such as $1/4 \div 1 = 1$, $3/4 \div 1 = 1/4$, and $1/2 = 1 \cdot \blacksquare$.	5, 18, 40, 48, 57, 61	96, 110
N.FL.06.04 Multiply and divide any two fractions, including mixed numbers, fluently.	85, 101, 104, 112, 117, 118, 120, 142, 153 Add / Subtract: 106, 146	Add / Subtract: 96, 104
Represent rational numbers as fractions or decimals		
N.ME.06.05 Order rational numbers and place them on the number line.	*22, *27, 49, *61, 63, *73, *74, *78, *83, *84, *95, 119, 130	23, 29, 36, *144, *153
N.ME.06.06 Represent rational numbers as fractions or terminating decimals when possible, and translate between these representations.	18, 27, 35, 40, 44, 46, 47, 49, 53, 57, 61, 67, 71, 72, 74, 78, 79, 81, 83, 86, 87, 90, 94, 95, 97, 102, 111, 113, 117, 120, 125, 133, 140, 151, 153 Repeating Decimals: 128, 140	18, 35, 46, 76, 84, 85, 89, 93, 96, 104, 110, 150, 152
N.ME.06.07 Understand that a fraction or a negative fraction is a quotient of two integers, e.g., $-8/3$ is -8 divided by 3.	118, 128, 129	7, 10, 50
Add and subtract integers and rational numbers		
N.MR.06.08 Understand integer subtraction as the inverse of integer addition. Understand integer division as the inverse of integer multiplication.	6, 16, 26, 31, 37, 38, 62, 72, 82, 96, 103, 132, 136, 138	
N.FL.06.09 Add and multiply integers between -10 and 10; subtract and divide integers using the related facts. Use the number line and chip models for addition and subtraction.	6, 37, 40, 84, 130, 131, 143, 144, 155	



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N.FL.06.10 Add, subtract, multiply and divide positive rational numbers fluently.	1, 4, 5, 6, 8, 9, 12, 17, 18, 19, 24, 26, 28, 29, 31, 33, 38, 39, 40, 41, 43, 46, 54, 58, 61, 62, 66, 67, 69, 72, 78, 79, 81, 82, 84, 92, 93, 95, 96, 97, 103, 106, 107, 120, 122, 126, 128, 132, 134, 136, 137, 138, 140, 141, 146, 147, 149, 152	1, 2, 3, 6, 7, 9, 10, 12, 13, 15, 16, 17, 20, 21, 24, 25, 26, 27, 28, 30, 31, 32, 37, 38, 39, 41, 42, 44, 46, 47, 49, 50, 54, 55, 56, 59, 60, 62, 65, 66, 67, 68, 69, 70, 72, 74, 75, 76, 78, 81, 82, 83, 86, 87, 89, 91, 93, 94, 96, 98, 99, 101, 102, 103, 111, 113, 115, 117, 123, 124, 125, 126, 128, 130, 132, 133, 140, 142, 148, 150, 154, 155
Find equivalent ratios		
N.ME.06.11 Find equivalent ratios by scaling up or scaling down.	*40, 66, 97, *99, 148	109, 119, 131, *147 Activity 2, 4, 6
Solve decimal, percentage and rational number problems		
N.FL.06.12 Calculate part of a number given the percentage and the number.	*44, *67, 71, 90, 94, 97, 98, 99, 105, 110, *111, 116, 127, 129, 133, 135, 140	48, 143, 147, 152
N.MR.06.13 Solve contextual problems involving percentages such as sales taxes and tips.	44, 67, 94, 97, 98, 99, 105, 110, 127, 133, 140	18, 48, 143, 147, 152
N.FL.06.14 For applied situations, estimate the answers to calculations involving operations with rational numbers.	8, 20, *31, 41, 42, 43, 55, 58, 61, 65, 86, 98, 108, 123, 132, 134, 135, 140, 154	1, 3, 18, 20, 25, 28, 31, 32, 35, 66, 73, 78, 85, 126, 152
N.FL.06.15 Solve applied problems that use the four operations with appropriate decimal numbers.	1, 31, 35, 51, 61, 69, 71, 72, 73, 79, 81, 86, *87, 94, 95, 97, 102, 110, 111, 135, 140, 151, 152, 153, 154 Whole Numbers: 5,6, 8, 9, 19, 54	28, 35, 38, 44, 46, 47, 76, 84, 85, 93, 147, 150, 152
Use exponents		
N.ME.06.16 Understand and use integer exponents, excluding powers of negative bases; express numbers in scientific notation.	77, 125, 139	141
Understand rational numbers and their location on the number line		
N.ME.06.17 Locate negative rational numbers (including integers) on the number line; know that numbers and their negatives add to 0, and are on opposite sides and at equal distance from 0 on a number line.	63, *109, 119, 130, 131, *143, *144	*23, *29, *36
N.ME.06.18 Understand that rational numbers are quotients of integers (non zero denominators), e.g., a rational number is either a fraction or a negative fraction.	118, 120, 128, 129	



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N.ME.06.19 Understand that 0 is an integer that is neither negative nor positive.	*38, 109, 130, 131	*132
N.ME.06.20 Know that the absolute value of a number is the value of the number ignoring the sign; or is the distance of the number from 0.	*130, *131	*132
Strand 2 Algebra		
Calculate rates		
A.PA.06.01 Solve applied problems involving rates, including speed, e.g., if a car is going 50 mph, how far will it go in 3 ½ hours?	29, 40, 89, 92 Mean, Median, Mode: 65 Averages: 55	24, 44, 47, 48, 54, 93 Averages: 138
Understand the coordinate plane		
A.RP.06.02 Plot ordered pairs of integers and use ordered pairs of integers to identify points in all four quadrants of the coordinate plane.	32, 36, 68, 76, 109, 115, 145 Union of Sets: 45	
Use variables, write expressions and equations, and combine like terms		
A.FO.06.03 Use letters, with units, to represent quantities in a variety of contexts, e.g., y lbs., k minutes, x cookies.	*3, 40, 48, 83, 100, 114, 115, 116, 148	5, 8, 22, 73, 75, 78, 81, 83, 87, 102, 115, 130
A.FO.06.04 Distinguish between an algebraic expression and an equation.	*3, *24, 37, *40, *48, *61, *65, *79, *91, *100, 114, 115, 116, 148	5, 8, 16, 21, 22, 27, 37, 44, 46, 47, 55, 56, 59, 63, 69, 75, 81, 82, 91, 96, 123, 124, 126
A.FO.06.05 Use standard conventions for writing algebraic expressions, e.g., $2x + 1$ means “two times x, plus 1” and $2(x + 1)$ means “two times the quantity $(x + 1)$.”	3, 40, 61, 83, 91, 100, 114, 115, 116, 148	5, 8, 21, 22, 44, 75, 81, 96
A.FO.06.06 Represent information given in words using algebraic expressions and equations.	4, 6, 8, 24, 29, 65, 79, 92, 114, 115, 116, 121, 139, 148	16, 21, 27, 37, 44, 46, 47, 55, 56, 59, 63, 69, 75, 81, 82, 91, 123, 124, 126
A.FO.06.07 Simplify expressions of the first degree by combining like terms, and evaluate using specific values.	*3, *91, *100, 115	75, 81, 141
Represent linear functions using tables, equations, and graphs		
A.RP.06.08 Understand that relationships between quantities can be suggested by graphs and tables.	36, *40, 100, 115, 145	*4, 23, 29, 33, 43, 52, 81



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A.PA.06.09 Solve problems involving linear functions whose input values are integers; write the equation; graph the resulting ordered pairs of integers, e.g., given c chairs, the “leg function” is $4c$; if you have 5 chairs, how many legs?; if you have 12 legs, how many chairs?	36, 40, 100, 115, *145	17, *81, 135, 149
A.RP.06.10 Represent simple relationships between quantities using verbal descriptions, formulas or equations, tables, and graphs, e.g., perimeter-side relationship for a square, distance-time graphs, and conversions such as feet to inches.	36, 40, 100, 115, 145	*4, 23, 29, 33, 36, 43, 52, 81, 136
Solve equations		
A.FO.06.11 Relate simple linear equations with integer coefficients, e.g., $3x = 8$ or $x + 5 = 10$, to particular contexts and solve.	*100, 115, *145	81
A.FO.06.12 Understand that adding or subtracting the same number to both sides of an equation creates a new equation that has the same solution.	37, *100, 115	
A.FO.06.13 Understand that multiplying or dividing both sides of an equation by the same non-zero number creates a new equation that has the same solutions.	37, *100, 115	
A.FO.06.14 Solve equations of the form $ax + b = c$, e.g., $3x + 8 = 15$ by hand for positive integer coefficients less than 20, use calculators otherwise, and interpret the results.	100, 115	
Strand 3 Measurement		
Convert within measurement systems		
M.UN.06.01 Convert between basic units of measurement within a single measurement system, e.g., square inches to square feet.	4, 10, 11, 13, 29, 41, 126, 137, 141, 151	39, 42, 74, 84, 89, 111
Find volume and surface area		
M.PS.06.02 Draw patterns (of faces) for a cube and rectangular prism that, when cut, will cover the solid exactly (nets).	*15, *59, *100 Triangle: 139	*118 Activity 5

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M.TE.06.03 Compute the volume and surface area of cubes and rectangular prisms given the lengths of their sides, using formulas.	30, 59, 100, 108, 139 Perimeter: 30, 75, 76 Area of Parallelogram: 121 Area of Triangle: 124 Circle / π : 125	59 Area: 28, 39, 56, 63 Perimeter: 28, 39, 55
Strand 4 Geometry		
Understand and apply basic properties		
G.GS.06.01 Understand and apply basic properties of lines, angles, and triangles, including:		
• triangle inequality	25, *33, 148	
• relationships of vertical angles, complementary angles, supplementary angles	*25, *33, 80, 88	
• congruence of corresponding and alternate interior angles when parallel lines are cut by a transversal, and that such congruencies imply parallel lines	*14, *60, 88	
• locate interior and exterior angles of any triangle, and use the property that an exterior angle of a triangle is equal to the sum of the remote (opposite) interior angles	*25, 33, *88, 148	
• know that the sum of the exterior angles of a convex polygon is 360° .	*60, *88	Activity 2
Understand the concept of congruence and basic transformations		
G.GS.06.02 Understand that for polygons, congruence means corresponding sides and angles have equal measures.	*14, *21, 23, *145, 148	*14, *118
G.TR.06.03 Understand the basic rigid motions in the plane (reflections, rotations, translations), relate these to congruence, and apply them to solve problems.	23	*51, *57, *58, 61, *64, 121
G.TR.06.04 Understand and use simple compositions of basic rigid transformations, e.g., a translation followed by a reflection.	23	61, 121



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Construct geometric shapes		
G.SR.06.05 Use paper folding to perform basic geometric constructions of perpendicular lines, midpoints of line segments and angle bisectors; justify informally.	*14, *124 Three-Dimensional Figures: 15	*14, *45, *53, 61, *71 Two-Dimensional: 14, 45, 53, 71, 108, 116, 129 Three-Dimensional: 51, 57, 58, 64, 118
Strand 5 Data and Probability		
Understand the concept of probability and solve problems		
D.PR.06.01 Express probabilities as fractions, decimals, or percentages between 0 and 1; know that 0 probability means an event will not occur and that probability 1 means an event will occur.	34, *70, 97, 99, 133, 150	*138, *146, 147
D.PR.06.02 Compute probabilities of events from simple experiments with equally likely outcomes, e.g., tossing dice, flipping coins, spinning spinners, by listing all possibilities and finding the fraction that meets given conditions.	34, 70, 150 Graphs / Charts: 2, 8, 15, 65, 69 Deductive Reasoning: 7	*138, 146, 147 Possibilities: 19, 34, 40, 67, 71, 79, 80, 97 Graphs / Charts: 33, 43, 52, 95, 106, 136, 137 Deductive Reasoning: 4, 11, 100, 105, 107, 112, 114, 122, 127, 134, 136, 145, 148

* Gives opportunity to teach specific Standard