Pennsylvania Mathematics

3rd

M03.A-T.1 Numbers and Operations 0

I M03.A-T.1.1 Apply place-value understanding and properties of operations to perform multi-digit arithmetic. I

- A M03.A-T.1.1.1: Round two- and three-digit whole numbers to the nearest ten or hundred, respectively. I.A
- B M03.A-T.1.1.2: Add two- and three-digit whole numbers (limit sums from 100 through 1,000) and/or subtract two- and three-digit numbers from three-digit whole numbers. I.B
- C M03.A-T.1.1.3: Multiply one-digit whole numbers by two-digit multiples of 10 (from 10 through 90) I.C
- D M03.A-T.1.1.4: Order a set of whole numbers from least to greatest or greatest to least (up through 9,999, and limit sets to no more than four numbers). I.D

M03.A-F.1 Algebraic Concepts 1

II M03.A-F.1.1 Explore and develop an understanding of fractions as numbers. II

- A M03.A-F.1.1.1: Demonstrate that when a whole or set is partitioned into y equal parts, the fraction 1/y represents 1 part of the whole and/or the fraction x/y represents x equal parts of the whole (limit denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; and no simplification necessary). II.A
- B M03.A-F.1.1.2: Represent fractions on a number line (limit denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; and no simplification necessary). II.B
- C M03.A-F.1.1.3: Recognize and generate simple equivalent fractions (limit the denominators to 1, 2, 3, 4, 6, and 8 and limit numerators to whole numbers less than the denominator). Example 1: 1/2 = 2/4 Example 2: 4/6 = 2/3 II.C
- D M03.A-F.1.1.4 Express whole numbers as fractions, and/or generate fractions that are equivalent to whole numbers (limit denominators to 1, 2, 3, 4, 6, and 8). Example 1: Express 3 in the form 3 = 3/1. Example 2: Recognize that 6/1 = 6. II.D
- E M03.A-F.1.1.5: Compare two fractions with the same denominator (limit denominators to 1, 2, 3, 4, 6, and 8), using the symbols >, =, or <, and/or justify the conclusions. II.E

III M03.B-O.1.1 Represent and solve problems involving multiplication and division. III

- A M03.B-O.1.1.1: Interpret and/or describe products of whole numbers (up to and including 10 × 10). III.A
- B M03.B-O.1.1.2: Interpret and/or describe whole-number quotients of whole numbers (limit dividends through 50 and limit divisors and quotients through 10). III.B
- C M03.B-O.1.2.1: Use multiplication (up to and including 10 × 10) and/or division (limit dividends through 50 and limit divisors and quotients through 10) to solve word problems in situations involving equal groups, arrays, and/or measurement quantities. III.C
- D M03.B-O.1.2.2: Determine the unknown whole number in a multiplication (up to and including 10 × 10) or division (limit dividends through 50 and limit divisors and quotients through 10) equation relating three whole numbers. E III.D

IV M03.B-O.2.1 Understand properties of multiplication and the relationship between multiplication and division. IV

- A M03.B-O.2.1.1 Apply the commutative property of multiplication (not identification or definition of the property) IV.A
- B M03.B-O.2.1.2: Apply the associative property of multiplication (not identification or definition of the property). IV.B
- C M03.B-O.2.2.1: Interpret and/or model division as a multiplication equation with an unknown factor. IV.C

V M03.B-O.3.1 Solve problems involving the four operations, and identify and explain patterns in arithmetic. V

- A M03.B-O.3.1.1: Solve two-step word problems using the four operations (expressions are not explicitly stated). Limit to problems with whole numbers and having whole-number answers. V.A
- B M03.B-O.3.1.2 Represent two-step word problems using equations with a symbol standing for the unknown quantity. Limit to problems with whole numbers and having whole-number answers. V.B
- C M03.B-O.3.1.3: Assess the reasonableness of answers. Limit problems posed with whole numbers and having whole-number answers. V.C
- D M03.B-O.3.1.4 Solve two-step equations using order of operations (equation is explicitly stated with no grouping symbols). V.D
- E M03.B-O.3.1.5: Identify arithmetic patterns (including patterns in the addition table or multiplication table) and/or explain them using properties of operations. V.E
- F M03.B-O.3.1.6: Create or match a story to a given combination of symbols (+, –, ×, ÷, <, >, and =) and numbers. V.F
- G M03.B-O.3.1.7 Identify the missing symbol (+, –, ×, ÷, <, >, and =) that makes a number sentence true. V.G

M03.C-G.1 Geometry 2

VI M03.C-G.1.1 Identify, compare, and classify shapes and their attributes. VI

- A M03.C-G.1.1.1 Explain that shapes in different categories may share attributes and that the shared attributes can define a larger category. VI.A
- B M03.C-G.1.1.2: Recognize rhombi, rectangles, and squares as examples of quadrilaterals and/or draw examples of quadrilaterals that do not belong to any of these subcategories. VI.B

VII M03.C-G.1.1 Use the understanding of fractions to partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole.

- A M03.C-G.1.1.3 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole VII.A

M03.D-M.1 Measurement, Data, and Probability 3

VIII M03.D-M.1.2 Solve problems involving measurement and estimation of temperature, liquid volume, mass, and length VIII

- A M03.D-M.1.2.1: Measure and estimate liquid volumes and masses of objects using standard units (cups [c], pints [pt], quarts [qt], gallons [gal], ounces [oz.], and pounds [lb]) and metric units (liters [l], grams [g], and kilograms [kg] VIII.A
- B M03.D-M.1.2.2 Add, subtract, multiply, and divide to solve one- step word problems involving masses or liquid volumes that are given in the same units. VIII.B
- C M03.D-M.1.2.3 Use a ruler to measure lengths to the nearest quarter inch or centimeter VIII.C

IX M03.D-M.1.1 Tell and write time to the nearest minute and solve problems by calculating time intervals. IX

- A M03.D-M.1.1.1: Tell, show, and/or write time (analog) to the nearest minute. IX.A
- B M03.D-M.1.1.2 Calculate elapsed time to the minute in a given situation (total elapsed time limited to 60 minutes or less) IX.B

X M03.D-M.1.3 Solve problems and make change involving money using a combination of coins and bills. X

- A M03.D-M.1.3.1 Compare total values of combinations of coins (penny, nickel, dime, and quarter) and/or dollar bills less than $5.00. X.A
- B M03.D-M.1.3.2 Make change for an amount up to $5.00 with no more than $2.00 change given (penny, nickel, dime, quarter, and dollar). X.B
- C M03.D-M.1.3.3 Round amounts of money to the nearest dollar. X.C

XI M03.D-M.2.1 Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.

- A M03.D-M.2.1.1 Complete a scaled pictograph and a scaled bar graph to represent a data set with several categories (scales limited to 1, 2, 5, and 10). XI.A
- B M03.D-M.2.1.2 Solve one- and two-step problems using information to interpret data presented in scaled pictographs and scaled bar graphs (scales limited to 1, 2, 5, and 10). XI.B
- C M03.D-M.2.1.3 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Display the data by making a line plot, where the horizontal scale is marked in appropriate units—whole numbers, halves, or quarters. XI.C
- D M03.D-M.2.1.4 Translate information from one type of display to another. Limit to pictographs, tally charts, bar graphs, and tables. Example: Convert a tally chart to a bar graph. XI.D

XII M03.D-M.3.1 Determine the area of a rectangle and apply the concept to multiplication and to addition. XII

- A M03.D-M.3.1.1 Measure areas by counting unit squares (square cm, square m, square in., square ft, and non-standard square units). XII.A
- B M03.D-M.3.1.2 Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. XII.B

XIII M03.D-M.4.1 Solve problems involving perimeters of polygons and distinguish between linear and area measures. XIII

- A M03.D-M.4.1.1 Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, exhibiting rectangles with the same perimeter and different areas, and exhibiting rectangles with the same area and different perimeters. Use the same units throughout the problem. XIII.A