

# Essentials of Math I

**WHOLE NUMBERS,  
NUMBER THEORY,  
NUMERATION AND REAL  
WORLD MATH,  
ARITHMETIC AND  
CALCULATION (N) <sup>N</sup>**

- 1 Interpret the meanings of coefficients, factors, terms, and expressions based on their real-world contexts. Interpret complicated expressions as being composed of simpler expressions. <sup>N.1</sup>**

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- 2 Write a function that describes a relationship between two quantities. <sup>N.2</sup>**
  - a** Write a function that models a relationship between two quantities using both explicit expressions and a recursive process and by combining standard forms using addition, subtraction, multiplication and division to build new functions. <sup>N.2.A</sup>
  - b** Combine functions using the operations addition, subtraction, multiplication, and division to build new functions that describe the relationship between two quantities in mathematical and real-world situations. <sup>N.2.B</sup>

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### Competency Goals

- 1 Identify place value through 100,000 and decimals through .01. **N.CG.1**
- 2 Recognize, read, and write numbers 0- 100. **N.CG.2**
- 3 Read, write, and compare whole numbers. **N.CG.3**
- 4 Identify the place value of a digit in a number. **N.CG.4**
- 5 Compute with whole numbers to solve word problems. **N.CG.5**
- 6 Demonstrate understanding of greater than, less than, and equal concepts. **N.CG.6**
- 7 Count by multiples (Use patterns and sequences to establish concepts of patterns in math). **N.CG.7**
- 8 Identify prime and composite numbers. **N.CG.8**
- 9 Factor numbers. **N.CG.9**
- 10 Find the least common multiple for pairs of numbers. **N.CG.10**
- 11 Find the greatest common factor for pairs of numbers. **N.CG.11**
- 12 Distinguish between odd and even numbers. **N.CG.12**
- 13 Read and write whole numbers, fractions, decimals, and percents. **N.CG.13**
- 14 Develop and use order relations for whole numbers, fractions, and decimals. **N.CG.14**
- 15 Understand and apply the rules governing how the basic math operations relate to each other. **N.CG.15**
- 16 Apply mathematical skills to daily living activities in the household. **N.CG.16**
- 17 Apply mathematical skills to entertainment and leisure activities. **N.CG.17**
- 18 Recognize symbols/signs used for basic arithmetic operations of subtraction, addition, multiplication, and division. **N.CG.18**
- 19 Demonstrate the knowledge of 4 basic arithmetic operations with whole numbers. **N.CG.19**

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### DECIMALS AND MONEY (DM) **DM**

- 1 **Create and solve equations and inequalities in one variable that model real-world problems involving linear, quadratic, simple rational, and exponential relationships. Interpret the solutions and determine whether they are reasonable.** **DM.1**
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- 2 **Solve simple rational and radical equations in one variable and understand how extraneous solutions may arise.** **DM.2**

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### Competency Goals

- 1 Identify names and values of coins and currency. [DM.CG.1](#)
  - 2 Write money amounts in words and numbers. [DM.CG.2](#)
  - 3 Round money values to nearest dollar and dime. [DM.CG.3](#)
  - 4 Add and subtract money. [DM.CG.4](#)
  - 5 Find sums and differences with money. [DM.CG.5](#)
  - 6 Write numbers in word form and in standard notation. [DM.CG.6](#)
  - 7 Order numbers. [DM.CG.7](#)
  - 8 Round decimals. [DM.CG.8](#)
  - 9 Compute with decimals and whole numbers. [DM.CG.9](#)
  - 10 Express fractions as decimals. [DM.CG.10](#)
  - 11 Express numbers in scientific notation. [DM.CG.11](#)
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## PERCENTAGES (P) [P](#)

- 1 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations and translate between two forms. [P.1](#)
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### Competency Goals

- 1 Rename a percent as a decimal and a fraction in simplest form. [P.CG.1](#)
  - 2 Rename a decimal and a fraction as a percent. [P.CG.2](#)
  - 3 Find the missing terms in a percent sentence. [P.CG.3](#)
  - 4 Use a proportion to find the missing term in a percent sentence. [P.CG.4](#)
  - 5 Solve work problems involving percentages and tax, commissions, interest, and tips. [P.CG.5](#)
  - 6 Calculate monthly payments on an installment plan. [P.CG.6](#)
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## MEASUREMENT – TIME, TEMPERATURE, LINEAR METRIC AND TRADITIONAL MEASUREMENT (M) [M](#)

- 1 Use units of measurement to guide the solution of multi-step tasks. Choose and interpret appropriate labels, units, and scales when constructing graphs and other data displays. [M.1](#)
  - 2 Label and define appropriate quantities in descriptive modeling contexts. [M.2](#)
  - 3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities in context. [M.](#)
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### Competency Goals

- 1 Identify vocabulary associated w/time (i.e., noon, midnight, daylight savings time, am, and pm). **M.CG.1**
- 2 Tell and record time using digital and analog clocks. **M.CG.2**
- 3 Recognize and read times given using analog and digital clocks. **M.CG.3**
- 4 Write time using numerical notations. **M.CG.4**
- 5 Identify units of time (hr. = 60 min.; 24 hrs.=1 day; 12 months=1 yr.; 7 days=1 wk.; 52 wks.=1 yr.). **M.CG.5**
- 6 Locate day, date, and month on calendar. **M.CG.6**
- 7 Identify abbreviations for units of time (i.e., day, week, month, hour, minute, and year). **M.CG.7**
- 8 Relate daily, weekly, and monthly events to clock and calendar. **M.CG.8**
- 9 Select and use appropriate units of measurement (e.g., linear and temperature). **M.CG.9**
- 10 Select and use appropriate tools for measurement. **M.CG.10**
- 11 Solve 1- and 2-step math applications involving 4 basic arithmetic processes (measurements, money, time, and temperature), using problem-solving techniques. **M.CG.11**
- 12 Measure line segments to the nearest tenth of a centimeter (nearest millimeter). **M.CG.12**
- 13 Estimate accurately the best unit for measuring a distance. **M.CG.13**
- 14 Change from one metric unit to another. **M.CG.14**
- 15 Find area measured in square units **M.CG.15**
- 16 Find volume measured in cubic units. **M.CG.16**
- 17 Find volume, or capacity, measured in liters. **M.CG.17**
- 18 Convert units of liquid capacity. **M.CG.18**
- 19 Convert units of weight. **M.CG.19**
- 20 Use a ruler to help measure line segments. **M.CG.20**
- 21 Convert units of length and distance. **M.CG.21**
- 22 Find the perimeter of a given shape. **M.CG.22**
- 23 Calculate the area within a shape. **M.CG.23**
- 24 Compute the volume within a prism. **M.CG.24**

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### FRACTIONS (F) **F**

- 1 Rewrite expressions involving simple radicals and rational exponents in different forms. **F.1**
  - 2 Solve simple rational and radical equations in one variable and understand how extraneous solutions may arise. **F.2**
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### Competency Goals

- 1 Recognize fractional parts and equivalent fractions. F.CG.1
- 2 Compare and order fractions. F.CG.2
- 3 Add and subtract fractions with like denominators. F.CG.3
- 4 Multiply and divide fractions. F.CG.4
- 5 Simplify fractions. F.CG.5
- 6 Compare fractions, and determine which is more than or less than. F.CG.6
- 7 Rename mixed numbers and improper fractions. F.CG.7
- 8 Compute with fractions and mixed numbers. F.CG.8