

# Grade 7: Standards

## Number Sense and Operations

### 1 Rewrite numbers in equivalent forms.

- 1 Know and apply the Laws of Exponents to evaluate numerical expressions and generate equivalent numerical expressions, limited to whole-number exponents and rational number bases. [MA.7.NSO.1.1](#)
  - 2 Rewrite rational numbers in different but equivalent forms including fractions, mixed numbers, repeating decimals and percentages to solve mathematical and real-world problems. [MA.7.NSO.1.2](#)
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### 2 Add, subtract, multiply and divide rational numbers.

- 1 Solve mathematical problems using multi-step order of operations with rational numbers including grouping symbols, whole-number exponents and absolute value. [MA.7.NSO.2.1](#)
  - 2 Add, subtract, multiply and divide rational numbers with procedural fluency. [MA.7.NSO.2.2](#)
  - 3 Solve real-world problems involving any of the four operations with rational numbers. [MA.7.NSO.2.3](#)
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## Algebraic Reasoning

### 1 Rewrite algebraic expressions in equivalent forms.

- 1 Apply properties of operations to add and subtract linear expressions with rational coefficients. [MA.7.AR.1.1](#)
  - 2 Determine whether two linear expressions are equivalent. [MA.7.AR.1.2](#)
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### 2 Write and solve equations and inequalities in one variable.

- 1 Write and solve one-step inequalities in one variable within a mathematical context and represent solutions algebraically or graphically. [MA.7.AR.2.1](#)
  - 2 Write and solve two-step equations in one variable within a mathematical or real-world context, where all terms are rational numbers. [MA.7.AR.2.2](#)
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### 3 Use percentages and proportional reasoning to solve problems.

- 1 Apply previous understanding of percentages and ratios to solve multi-step real-world percent problems. [MA.7.AR.3.1](#)
- 2 Apply previous understanding of ratios to solve real-world problems involving proportions. [MA.7.AR.3.2](#)
- 3 Solve mathematical and real-world problems involving the conversion of units across different measurement systems. [MA.7.AR.3.3](#)

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#### **4 Analyze and represent two-variable proportional relationships.**

- 1 Determine whether two quantities have a proportional relationship by examining a table, graph or written description. [MA.7.AR.4.1](#)
  - 2 Determine the constant of proportionality within a mathematical or real-world context given a table, graph or written description of a proportional relationship. [MA.7.AR.4.2](#)
  - 3 Given a mathematical or real-world context, graph proportional relationships from a table, equation or a written description. [MA.7.AR.4.3](#)
  - 4 Given any representation of a proportional relationship, translate the representation to a written description, table or equation. [MA.7.AR.4.4](#)
  - 5 Solve real-world problems involving proportional relationships. [MA.7.AR.4.5](#)
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### **Geometric Reasoning**

#### **1 Solve problems involving two-dimensional figures, including circles.**

- 1 Apply formulas to find the areas of trapezoids, parallelograms and rhombi. [MA.7.GR.1.1](#)
  - 2 Solve mathematical or real-world problems involving the area of polygons or composite figures by decomposing them into triangles or quadrilaterals. [MA.7.GR.1.2](#)
  - 3 Explore the proportional relationship between circumferences and diameters of circles. Apply a formula for the circumference of a circle to solve mathematical and real-world problems. [MA.7.GR.1.3](#)
  - 4 Explore and apply a formula to find the area of a circle to solve mathematical and real-world problems. [MA.7.GR.1.4](#)
  - 5 Solve mathematical and real-world problems involving dimensions and areas of geometric figures, including scale drawings and scale factors. [MA.7.GR.1.5](#)
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#### **2 Solve problems involving three-dimensional figures, including right circular cylinders.**

- 1 Given a mathematical or real-world context, find the surface area of a right circular cylinder using the figure's net. [MA.7.GR.2.1](#)
  - 2 Solve real-world problems involving surface area of right circular cylinders. [MA.7.GR.2.2](#)
  - 3 Solve mathematical and real-world problems involving volume of right circular cylinders. [MA.7.GR.2.3](#)
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## Data Analysis and Probability

### 1 Represent and interpret numerical and categorical data.

- 1 Determine an appropriate measure of center or measure of variation to summarize numerical data, represented numerically or graphically, taking into consideration the context and any outliers. [MA.7.DP.1.1](#)
  - 2 Given two numerical or graphical representations of data, use the measure(s) of center and measure(s) of variability to make comparisons, interpret results and draw conclusions about the two populations. [MA.7.DP.1.2](#)
  - 3 Given categorical data from a random sample, use proportional relationships to make predictions about a population. [MA.7.DP.1.3](#)
  - 4 Use proportional reasoning to construct, display and interpret data in circle graphs. [MA.7.DP.1.4](#)
  - 5 Given a real-world numerical or categorical data set, choose and create an appropriate graphical representation. [MA.7.DP.1.5](#)
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### 2 Develop an understanding of probability. Find and compare experimental and theoretical probabilities.

- 1 Determine the sample space for a simple experiment. [MA.7.DP.2.1](#)
- 2 Given the probability of a chance event, interpret the likelihood of it occurring. Compare the probabilities of chance events. [MA.7.DP.2.2](#)
- 3 Find the theoretical probability of an event related to a simple experiment. [MA.7.DP.2.3](#)
- 4 Use a simulation of a simple experiment to find experimental probabilities and compare them to theoretical probabilities. [MA.7.DP.2.4](#)