

Grade 7

Ratios & Proportional Relationships: Analyze proportional relationships and use them to solve real-world and mathematical problems. 7.RP.A

- 1 Compute unit rates associated with ratios of whole numbers, including ratios of lengths, areas, and other quantities measured in like or different units.** 7.RP.A.1
 - a For example, if a person walks 6 miles in 2 hours, compute the unit rate as the fraction $\frac{6}{2}$, equivalently 3 miles per hour. 7.RP.A.1.A

- 2 Represent proportional relationships between quantities using a table.** 7.RP.A.2

- 3 Use proportional relationships to solve simple ratio and percent problems.** 7.RP.A.3
 - a Examples: simple interest, tax, markups and markdowns, and gratuities. 7.RP.A.3.A

The Number System: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. 7.NS.A

- 1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers with single-digit numerators and denominators up to at least 12.** 7.NS.A.1
 - a Represent addition and subtraction on a horizontal or vertical number line diagram. For example, add $-1 + 3$ to get 1. 7.NS.A.1.A

- 2 Apply and extend previous understandings of multiplication and division and or fractions to multiply and divide rational numbers with single-digit numerators and denominators up to at least 12, e.g., by using visual fraction models or equations to represent the problem.** 7.NS.A.2
 - a For example, dividing $\frac{3}{4}$ of a pizza into pieces the size of $\frac{1}{4}$ of the whole $\frac{3}{4}$ pizza can be written as 3 divided by 1, and it yields 3 pieces. 7.NS.A.2.A

- 3 Solve real-world and mathematical problems involving the four operations.** 7.NS.A.3

Expressions & Equations: Use properties of operations to generate equivalent expressions. 7.EE.A

- 1 Apply properties of operations as strategies to add and subtract linear expressions with whole number coefficients. For example, $2x + 3x$ is $5x$.** 7.EE.A.1

- 2 Demonstrate that rewriting an expression in different forms can shed light on the problem and how the quantities in it are related.** 7.EE.A.2
 - a For example, if 3 people at lunch spend \$21 for sandwiches, the expression $\$7 \times 3$ tells us that it was 7 dollars for each of the 3 sandwiches. 7.EE.A.2.A

Expressions & Equations: Solve real-life and mathematical problems using numerical and algebraic expressions and equations. 7.EE.B

3 Solve multi-step real-life and mathematical problems posed with whole numbers, benchmark fractions, and/or decimals to two decimal places. Numbers should combine cleanly for simpler calculations. 7.EE.B.3

- a For example, if a sandwich costs \$6.50 and a drink costs \$1.50, but you have a coupon to save 1 off the total, how much will you spend for the 4 sandwich and the drink? 7.EE.B.3.A

4 Solve real-world or mathematical problems using simple equations containing variables. 7.EE.B.4

- b For example, if x number of glasses of water plus 2 glasses of water makes 8 glasses of water total, then x must be 6 glasses of water. 7.EE.B.4.B
- c Represent the problems using objects or drawings and match the situations to equations (in this case, $x + 2 = 8$). 7.EE.B.4.C

Statistics & Probability: Use random sampling to draw inferences about a population. 7.SP.A

1 Understand that statistics usually involves measuring something about a sample to learn something about a problem. 7.SP.A.1

2 Use data from a sample to answer a statistical question. 7.SP.A.2

- a For example, conclude from a sample of the class that most students like chocolate ice cream. 7.SP.A.2.A

Statistics & Probability: Draw informal comparative inferences about two populations. 7.SP.B

3 Informally compare two sets of data within a single data display, such as a picture graph, line plot, or bar graph. 7.SP.B.3

4 Use given measures of center and given measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. 7.SP.B.4

- a For example, if the average height of a class of 8th graders is 5 feet 5 inches, and the average height of a class of 7th graders is 5 feet 2 inches, which population is more likely taller on average, 8th graders or 7th graders? 7.SP.B.4.A

Statistics & Probability: Investigate chance processes and develop, use, and evaluate probability models. 7.SP.C

5 Indicate an understanding that the probability of a chance event can be 0, for things that never happen, between 0 and 1, for things that sometimes happen, or 1, for things that always happen. 7.SP.C.5

6 Collect data on a chance process (e.g., flipping a coin, rolling a die) and observe its long-run relative frequency. 7.SP.C.6

7 Compare probabilities from a model to observed frequencies and identify when agreement is not good. 7.SP.C.7

- a For example, given that the probability of flipping heads is 0.5, getting 8 heads out of 10 flips is not good agreement with the model. 7.SP.C.7.A

8 Find probabilities of compound events using organized lists and tree diagrams. 7.SP.C.8

Geometry: Draw, construct, and describe geometrical figures and describe the relationships between them. 7.G.A

- 1 Match corresponding parts of scale drawings of geometric figures and compare given lengths and areas.** 7.G.A.1

 - 2 Create triangles with given conditions and recognize that some combinations of side lengths and/or angles cannot be made into a triangle.** 7.G.A.2

 - 3 Describe rectangular cross-sections from right rectangular prisms.** 7.G.A.3
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Geometry: Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. 7.G.B

- 4 Use the formula for the area and circumference of a circle to solve problems.** 7.G.B.4

- 5 Recognize angles that are acute, obtuse, and right (EE.7.G.B.5).** 7.G.B.5

- 6 Solve real-world and mathematical problems involving the area of triangles, rectangles, and circles, and the volume and surface area of right rectangular prisms.** 7.G.B.6