



## Grade 7: Unit Test A (Ratios Proportional Relationships)

Item Number	Topic Lesson	Common Core State Standard	Description
1	1.1	7.RP.1	Apply and extend previous understandings of equivalent ratios.
2	1.2	7.RP.1	Compute unit rates associated with ratios of fractions.
3	1.3	7.RP.1	Apply and extend previous understandings of equivalent ratios.
4	1.4	7.RP.1	Compute unit rates associated with ratios of fractions.
5	1.5	7.RP.1	Compute unit rates associated with ratios of fractions.
6	2.1	7.RP.2	Recognize and represent proportional relationships between quantities.
7	2.2	7.RP.2d	Explain what a point $(x, y)$ on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where $r$ is the unit rate.
8	2.3	7.RP.2b	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams and verbal descriptions of proportional relationships.
9	2.4	7.RP.2c	Represent proportional relationships by equations.
10	2.5	7.RP.2c	Solve problems involving scale drawings of geometric figures.
11	2.6	7.RP.2b	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams and verbal descriptions of proportional relationships.
12	3.1	7.RP.2c	Represent proportional relationships by equations.
13	3.2	7.RP.3	Use proportional relationships to solve multistep ratio and percent problems involving taxes and gratuities (tips).
14	3.3	7.RP.3	Use proportional relationships to solve multistep ratio and percent problem involving simple interest.
15	3.4	7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers.
16	3.5	7.RP.3	Use proportional relationships to solve multistep ratio and percent problems involving percent increase and decrease.
17	3.6	7.RP.3	Use proportional relationships to solve multistep ratio and percent problems involving markups and markdowns.
18	3.7	7.RP.3	Use proportional relationships to solve multistep ratio and percent problems involving markups and markdowns.
19	2.4	7.RP.2c	Represent proportional relationships by equations.



## Grade 7: Unit Test A (continued)

Item Number	Topic Lesson	Common Core State Standard	Description
20	2.6	7.RP.2	Recognize and represent proportional relationships between quantities.
21	3.2	7.RP.3	Use proportional relationships to solve multistep ratio and percent problems involving commissions and fees.
22	3.4	7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers.
23	1.4	7.RP.1	Compute unit rates associated with ratios of fractions.
24	1.5	7.RP.1	Apply and extend previous understandings of equivalent ratios.
25	2.5	7.G.1	Solve problems involving scale drawings of geometric figures.
26	3.1	7.RP.2c	Represent proportional relationships by equations.
27	2.1	7.RP.2a	Decide whether two quantities are in a proportional relationship by testing for equivalent ratios in a table.
28	3.5	7.RP.3	Use proportional relationships to solve multistep ratio and percent problems involving percent increase and decrease.
29	1.4	7.RP.1	Compute unit rates associated with ratios of fractions.
30	1.3	7.RP.1	Apply and extend previous understandings of equivalent ratios.



## Grade 7: Unit Test B (Rational Numbers)

Item Number	Topic Lesson	Common Core State Standard	Description
1	4.1	7.NS.1a	Apply and extend previous understandings of rational numbers, including opposites and absolute value as a distance from zero.
2	4.2	7.NS.1b	Recognize additive inverses as pairs of numbers that have a sum of 0.
3	4.3	7.NS.1b	Use absolute value understanding to find $p + q$ as the number located a distance $ q $ from $p$ , in the positive or negative direction depending on whether $q$ is positive or negative.
4	4.4	7.NS.1	Use horizontal or vertical number line diagrams to represent addition and subtraction.
5	4.5	7.NS.1b	Interpret sums of rational numbers by describing real-world contexts.
6	4.6	7.NS.1c	Find the distance between two rational numbers on the number line using the absolute value of their difference, and apply this principle in real-world contexts.
7	4.7	7.NS.1b	Use absolute value understanding to find $p + q$ as the number located a distance $ q $ from $p$ , in the positive or negative direction depending on whether $q$ is positive or negative.
8	5.1	7.NS.2a	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers.
9	5.2	7.NS.2	Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers.
10	5.3	7.NS.2b	Understand that if $p$ and $q$ are integers, then $-(p/q) = (-p)/q = p/(-q)$ .
11	5.4	7.NS.2	Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers.
12	5.5	7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers.
13	5.6	7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers.
14	6.1	7.NS.2d	Convert a rational number to a decimal using long division.
15	6.2	7.NS.2d	Convert a rational number to a decimal using long division.
16	6.3	7.NS.3	Apply and extend previous understandings of fractions, decimals, and percents to use them interchangeably to solve real-world and mathematical problems.
17	6.4	7.NS.3	Apply and extend previous understandings of fractions, decimals, and percents to use them interchangeably to solve real-world and mathematical problems.
18	6.5	7.NS.2d	Convert a rational number to a decimal using long division.
19	6.6	7.RP.3	Use proportional relationships to solve multistep ratio and percent problems involving percent error.
20	6.7	7.NS.3	Apply and extend previous understandings of fractions, decimals, and percents to use them interchangeably to solve real-world and mathematical problems.



## Grade 7: Unit Test B (continued)

Item Number	Topic Lesson	Common Core State Standard	Description
21	4.7	7.NS.1c	Find the distance between two rational numbers on the number line using the absolute value of their difference, and apply this principle in real-world contexts.
22	4.6	7.NS.1c	Find the distance between two rational numbers on the number line using the absolute value of their difference, and apply this principle in real-world contexts.
23	4.1	7.NS.1a	Describe situations in which opposite quantities combine to make 0.
24	5.2	7.NS.2	Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers.
25	5.3	7.NS.2b	Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number.
26	4.2	7.NS.1b	Recognize additive inverses as pairs of numbers that have a sum of 0.
27	4.4	7.NS.1	Use horizontal or vertical number line diagrams to represent addition and subtraction.
28	6.1	7.NS.2d	Convert a rational number to a decimal using long division.
29	5.5	7.NS.2d	Apply properties of operations as strategies to multiply and divide rational numbers.
30	5.2	7.NS.2a	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers.



## Grade 7: Unit Test C (Expressions and Equations)

Item Number	Topic Lesson	Common Core State Standard	Description
1	7.1	7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
2	7.2	7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
3	7.3	7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
4	7.4	7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
5	7.5	7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
6	8.1	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations to solve problems by reasoning about the quantities.
7	8.2	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations to solve problems by reasoning about the quantities.
8	8.3	7.EE.3	Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically.
9	8.4	7.EE.4a	Solve word problems leading to equations of the form $p(x + q) = r$ , where $p$ , $q$ , and $r$ are specific rational numbers. Solve equations of this form fluently.
10	8.5	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations to solve problems by reasoning about the quantities.
11	9.1	7.EE.4b	Graph the solution set of the inequality and interpret it in the context of the problem.
12	9.2	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple inequalities to solve problems by reasoning about the quantities.
13	9.3	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple inequalities to solve problems by reasoning about the quantities.
14	9.4	7.EE.4b	Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$ , where $p$ , $q$ , and $r$ are specific rational numbers.
15	9.5	7.EE.4b	Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$ , where $p$ , $q$ , and $r$ are specific rational numbers.
16	7.4	7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
17	7.5	7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
18	8.4	7.EE.4a	Solve word problems leading to equations of the form $p(x + q) = r$ , where $p$ , $q$ , and $r$ are specific rational numbers. Solve equations of this form fluently.



## Grade 7: Unit Test C (continued)

Item Number	Topic Lesson	Common Core State Standard	Description
19	8.1	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations to solve problems by reasoning about the quantities.
20	8.2	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations to solve problems by reasoning about the quantities.
21	8.3	7.EE.4a	Solve word problems leading to equations of the form $px + q = r$ , where $p$ , $q$ , and $r$ are specific rational numbers. Solve equations of this form fluently.
22	8.5	7.EE.4a	Solve word problems leading to equations of the form $px + q = r$ , where $p$ , $q$ , and $r$ are specific rational numbers. Solve equations of this form fluently.
23	9.3	7.EE.4b	Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$ , where $p$ , $q$ , and $r$ are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
24	9.5	7.EE.4b	Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$ , where $p$ , $q$ , and $r$ are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
25	9.5	7.EE.4b	Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$ , where $p$ , $q$ , and $r$ are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
26	9.2	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple inequalities to solve problems by reasoning about the quantities.
27	7.4	7.EE.2	Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
28	7.2	7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
29	8.2	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations to solve problems by reasoning about the quantities.
30	7.1	7.EE.1	Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.



## Grade 7: Unit Test D (Geometry)

Item Number	Topic Lesson	Common Core State Standard	Description
1	10.1	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations to solve problems by reasoning about the quantities.
2	10.2	7.G.5	Use facts about adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
3	10.3	7.G.5	Use facts about adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
4	10.4	7.G.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions.
5	10.5	7.G.5	Use facts about vertical angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
6	10.6	7.G.5	Use facts about adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
7	11.1	7.EE.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations to solve problems by reasoning about the quantities.
8	11.2	7.G.4	Solve problems using the formula for the circumference of a circle.
9	11.3	7.G.4	Solve problems using the formula for the area of a circle.
10	11.4	7.G.4	Give an informal derivation of the relationship between the circumference and area of a circle.
11	11.5	7.G.4	Solve problems using the formula for the circumference of a circle.
12	12.1	7.G.2	Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions.
13	12.2	7.G.2	Construct triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
14	12.3	7.G.2	Construct triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
15	12.4	7.G.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
16	12.5	7.G.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
17	12.6	7.G.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
18	13.1	7.G.6	Solve real-world and mathematical problems involving area of two-dimensional objects and surface area of three-dimensional objects composed of triangles, quadrilaterals, and polygons.



## Grade 7: Unit Test D (continued)

Item Number	Topic Lesson	Common Core State Standard	Description
19	13.2	7.G.6	Solve real-world and mathematical problems involving area of two-dimensional objects and volume of three-dimensional objects composed of triangles, quadrilaterals, and polygons.
20	13.3	7.G.6	Solve real-world and mathematical problems involving area of two-dimensional objects and surface area of three-dimensional objects composed of triangles, quadrilaterals, and polygons.
21	13.4	7.G.6	Solve real-world and mathematical problems involving area of two-dimensional objects and volume of three-dimensional objects composed of triangles, quadrilaterals, and polygons.
22	13.5	7.G.6	Solve real-world problems involving surface area and volume of a three-dimensional object composed of right prisms.
23	11.4	7.G.4	Give an informal derivation of the relationship between the circumference and area of a circle.
24	12.5	7.G.3	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
25	13.2	7.G.6	Solve real-world and mathematical problems involving area of two-dimensional objects and volume of three-dimensional objects composed of triangles, quadrilaterals, and polygons.
26	11.2	7.G.4	Solve problems using the formula for the circumference of a circle.
27	10.3	7.G.5	Use facts about complementary angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
28	13.4	7.G.5	Solve real-world and mathematical problems involving area of two-dimensional objects and volume of three-dimensional objects composed of triangles, quadrilaterals, and polygons.
29	10.2	7.G.2	Name parts of a geometric figure using appropriate letters and symbols.
30	13.1	7.G.6	Solve real-world and mathematical problems involving area of two-dimensional objects and surface area of three-dimensional objects composed of triangles, quadrilaterals, and polygons.





## Grade 7: Unit Test E (Statistics)

Item Number	Topic Lesson	Common Core State Standard	Description
1	14.1.2	7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population.
2	14.2.2	7.SP.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest.
3	14.3.2	7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population.
4	14.4.2	7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population.
5	14.5.2	7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population.
6	14.6.4	7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population.
7	14.7.3	7.SP.2	Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.
8	15.1.5	7.SP.4	Use measures of center and measures of variability for numerical data from random samples.
9	15.2.5	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
10	15.3.2	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
11	15.4.5	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
12	15.5.2	7.SP.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.
13	15.6.1	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
14	14.1.6	7.SP.1	Understand that generalizations about a population from a sample are valid only if the sample is representative of that population.
15	14.2.4	7.SP.2	Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.
16	14.3.4	7.SP.1	Understand that generalizations about a population from a sample are valid only if the sample is representative of that population.
17	14.4.6	7.SP.1	Understand that generalizations about a population from a sample are valid only if the sample is representative of that population.
18	14.5.13	7.SP.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest.
19	14.6.13	7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population.



## Grade 7: Unit Test E (continued)

Item Number	Topic Lesson	Common Core State Standard	Description
20	14.7.6	7.SP.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest.
21	15.1.6	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
22	15.2.10	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
23	15.3.13	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
24	15.4.13	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
25	15.5.4	7.SP.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.
26	15.6.5	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
27	14.2.15	7.SP.2	Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.
28	15.2.14		Differentiate between single and multiple populations.
29	14.1.11	7.SP.1	Understand that generalizations about a population from a sample are valid only if the sample is representative of that population.
30	15.3.8	7.SP.4	Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.



## Grade 7: Unit Test F (Probability)

Item Number	Topic Lesson	Common Core State Standard	Description
1	16.1	7.SP.5	Identify the probability of a chance event using a number between 0 and 1 to express the likelihood of the event occurring.
2	16.2	7.SP.7	Develop a probability model and use it to find probabilities of events.
3	16.3	7.SP.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.
4	16.4	7.SP.7	Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
5	16.5	7.SP.7	Develop a probability model and use it to find probabilities of events.
6	16.6	7.SP.7	Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
7	17.1	7.SP.8b	Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams.
8	17.2	7.SP.8b	Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams.
9	17.3	7.SP.8a	Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
10	17.4	7.SP.8a	Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
11	17.5	7.SP.8c	Design and use a simulation to generate frequencies for compound events.
12	17.6	7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
13	17.7	7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
14	16.1	7.SP.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.
15	16.2	7.SP.6	Develop a probability model and use it to find probabilities of events.
16	16.3	7.SP.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.
17	16.4	7.SP.7a	Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.
18	16.5	7.SP.7b	Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.
19	16.6	7.SP.7b	Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.
20	17.1	7.SP.8b	Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams.



## Grade 7: Unit Test F (continued)

Item Number	Topic Lesson	Common Core State Standard	Description
21	17.2	7.SP.8b	Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams.
22	17.3	7.SP.8b	Identify the outcomes in a sample space that compose a compound event described in everyday language.
23	17.4	7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
24	17.5	7.SP.8c	Design and use a simulation to generate frequencies for compound events.
25	17.6	7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
26	17.7	7.SP.7	Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
27	17.2	7.SP.8b	Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams.
28	16.6	7.SP.7	Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.
29	17.5	7.SP.8c	Design and use a simulation to generate frequencies for compound events.
30	17.6	7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.