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# 7<sup>th</sup> Grade (current 8<sup>th</sup> grade) GSA Data 2018 Summary

# Times Tested

## Ratios and Proportional Relationships and Number Systems

M.7.1 - Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. (e.g., If a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour.)	4	4
M.7.2a - Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship (e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin).	1	5
M.7.2b - Recognize and represent proportional relationships between quantities. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams and verbal descriptions of proportional relationships.	1	5
M.7.2c - Recognize and represent proportional relationships between quantities. c. Represent proportional relationships by equations. (e.g., If total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.)	2	2
M.7.2d - Recognize and represent proportional relationships between quantities. d. Explain what a point (x,y) on the graph of a proportional relationship means in terms of the situation. Focus special attention on the points (0,0) and (1,r) where r is the unit rate.	1	5
M.7.3 - Use proportional relationships to solve multistep ratio and percent problems (e.g., simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, and/or percent error).	6	4
M.7.4b - Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. b. Understand $p + q$ as the number located a distance $ q $ from $p$ , in the positive or negative direction, depending on whether $q$ is positive or negative. (i.e., To add " $p + q$ " on the number line, start at " $0$ " and move to " $p$ " then move $ q $ in the positive or negative direction depending on whether " $q$ " is positive or negative.) Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	4	4
M.7.4c - Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$ . Show that the distance between two rational numbers on the number line is the absolute value of their difference and apply this principle in real-world contexts.	1	6
M.7.5a - Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. 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. Interpret products of rational numbers by describing real-world contexts.	1	1
M.7.5c - Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. c. Apply properties of operations as strategies to multiply and divide rational numbers.	1	3
M.7.6 - Solve real-world and mathematical problems involving the four operations with rational numbers.	3	5

Form created by Greg Minter

## Expressions and Equations

M.7.10a - Use variables to represent quantities in a real-world or mathematical problem and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $px + q = r$ where $p$ , $q$ , and $r$ are specific rational numbers. Solve equations of these forms fluently. Compare an	4	1
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