

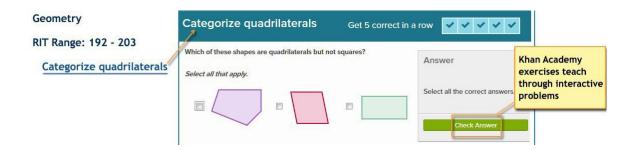
## MAP Growth Mathematics to Khan Academy

## Khan Academy Practice Exercises Correlated to RIT

#### Common Core MAP Growth Math 6+

#### **About this Document**

This document correlates MAP® Growth™ test sub-goals and RIT ranges to Khan Academy® exercises. The Khan Academy exercises are interactive problems for students with instant feedback.



Having these exercises correlated to RIT ranges means you can use them in conjunction with your flexible student groupings that are also informed by RIT score results. The exercises are also useful for targeting learning in each student's zone of proximal development (Vygotsky).

The correlation between MAP Growth RIT scores and the Khan Academy exercises was determined by using our 2020 norms data to approximate grade levels, which were then matched to the corresponding Common Core State Standards (CCSS). Teachers in states that have not adopted the CCSS may still find these resources valuable by relating goals or sub-goals that are similar to CCSS goals and sub-goals.

NWEA plans to work with Khan Academy to update these links twice a year as new exercises are developed.

#### How to Use

- 1. Use MAP Growth reports to find the RIT scores for a given sub-goal.
- 2. In this document, locate that same goal, approximate RIT range, and sub-goals.
- 3. To choose appropriate Khan Academy exercises:
  - Consider both the name of the exercise and the CCSS standard.
  - Click the link and try the exercise yourself.
     Note: When you're in Khan Academy, the links to videos and other resources add context to the actual exercise, but are not necessarily correlated to MAP Growth.
- 4. In the browser window where the exercise opened, note or copy the Web address URL.
- 5. Optionally deliver exercises to students. For example:
  - Paste the URL into an online document for students to access.
  - Present the exercise in the classroom.
  - Use for parent-teacher conference discussion.

#### Limitations

The instructional suggestions presented in this document are intended to provide supplementary resources based on available Khan Academy exercises and are not intended to replace other options. MAP Growth data should be used as one of many data points for instructional decisions rather than as a placement guide.

#### Terms of Use

These Terms of Use permit you to use this document for your personal, non-commercial use only. You must not reproduce, distribute, modify, create derivative works of, publicly display, publicly perform, republish, download, store or transmit any of the material on this document, except you may print or download one copy of a reasonable number of pages of this document for your own personal, non-commercial use and not for further reproduction, publication or distribution. You must not modify copies of this document. You must not delete or alter any copyright, trademark or other proprietary rights notices from this document. If you breach the Terms of Use your right to use the document will cease immediately and you must, at the option of NWEA®, return or destroy any copies of the document you have made. No right, title or interest in or to the document or any content on the document is transferred to you, and all rights not expressly granted are reserved by NWEA or their respective owner (see below). Any use of the document not expressly permitted by these Terms of Use is a breach of these Terms of Use and may violate copyright, trademark and other laws.

This document contains links to Khan Academy sites, materials and/or resources ("Khan Materials"). The use of the Khan Materials by NWEA is by license. Khan Academy is the respective owner of the Khan Materials. Use of the Khan Materials by NWEA in no way represents or suggests that Khan Academy endorses NWEA. All Khan Academy content is available for free at www.khanacademy.org.

The Khan Materials are provided for your convenience only. NWEA has no control over the contents of the Khan Materials and accepts no responsibility for them or for any loss or damage that may arise from your use of them. The information contained in this document, including the Khan Materials, are provided "as-is" and "as available" without any warranty of any kind, express or implied. NWEA does not warrant the accuracy, completeness or usefulness of the Khan Materials or any other information in this document and NWEA expressly disclaims all liability and responsibility arising from any reliance placed on the Khan Materials and/or any other information in this document. If you decide to access any of the Khan Materials, you do so entirely at your own risk and subject to the terms and conditions of use for the Khan Materials.

NWEA disclaims all warranties of any kind, whether express or implied, statutory or otherwise, including but not limited to any warranties of merchantability, non-infringement and fitness for particular purpose. In no event will NWEA be liable for damages of any kind, under any legal theory, arising out of or in connection with your use, or inability to use, this document and/or the information contained within it, including any direct, indirect, special, consequential, incidental or punitive damages. Any dispute or claim arising from or related to this document shall be governed and construed with the laws of the State or Oregon and any suit or action arising out of this document shall be instituted exclusively in the court of the State of Oregon and County of Multnomah.

The Khan Academy® is a registered trademark of Khan Academy. MAP® is a registered trademark of NWEA. You must not use such marks without the prior written permission of their respective owners. NWEA may update the content on this document from time to time, but its content is not necessarily complete or up-to-date. Any of the material in this document may be out of date at any given time, and NWEA is under no obligation to update such material. However, in the event NWEA, in its sole discretion updates this document, your continued use of it following the posting of revised Terms of Use means that you accept and agree to the changes.

# MAP Growth Mathematics Khan Academy Practice Exercises Correlation

## Common Core Math 6+

| Operations and Algebraic Thinking                |        |
|--|--------|
| Expressions and Equations                        | Pg. 4  |
| Use Functions to Model Relationships             | Pg. 14 |
| The Real and Complex Number Systems              |        |
| Ratios and Proportional Relationships            | Pg. 22 |
| Perform Operations                               | Pg. 25 |
| Extend and Use Properties                        | Pg. 35 |
| Geometry   |        |
| Geometric Measurement and Relationships          | Pg. 39 |
| Congruence, Similarity, Right Triangles, & Trig  | Pg. 46 |
| Statistics and Probability                       |        |
| Interpreting Categorical and Quantitative Data   | Pg. 50 |
| Using Sampling and Probability to Make Decisions | Pg. 53 |

| Expressions and Equations S  | Standards Alignment |
|--|---------------------|
| RIT Range: 189-200   |                     |
| Relate division to multiplication word problems                      | 3.OA.A.3   3.OA.B.6 |
| Find missing divisors and dividends (1-digit division)               | 3.OA.A.4            |
| Find missing factors (1-digit multiplication)                        | 3.OA.A.4            |
| Letters and symbols in multiplication and division equations         | 3.OA.A.4            |
| Associative property of multiplication                               | 3.OA.B.5            |
| Commutative property of multiplication                               | 3.OA.B.5            |
| Distributive property of multiplication                              | 3.OA.B.5            |
| Represent 2-step word problems with equations                        | 3.OA.D.8            |
| RIT Range: 201-210   |                     |
| Multi-step word problems with whole numbers                          | 4.OA.A.3            |
| Represent multi-step word problems using equations                   | 4.OA.A.3            |
| Troprocont mater otop word problems doing equations                  |                     |
| RIT Range: 211-217   |                     |
| Powers of ten  | 5.NBT.A.2           |
| Evaluate expressions with parentheses                                | 5.OA.A.1            |
| Create expressions with parentheses                                  | 5.OA.A.2            |
| Translate expressions with parentheses                               | 5.OA.A.2            |
| RIT Range: 218-221   |                     |
| Exponents Exponents  | 6.EE.A.1            |
| Exponents (basic)  | 6.EE.A.1            |
| Powers of fractions  | 6.EE.A.1            |
| Variable expressions with exponents                                  | 6.EE.A.1            |
| Order of operations challenge  | 6.EE.A.1   6.EE.A.2 |
| Evaluating expressions with multiple variables                       | 6.EE.A.2            |
| Evaluating expressions with multiple variables: fractions & decimals | 6.EE.A.2            |
| Evaluating expressions with one variable                             | 6.EE.A.2            |

| Expressions and Equations                                       | Standards Alignment |
|---|---------------------|
| RIT Range: 218-221  |                     |
| Evaluating expressions with variables word problems             | 6.EE.A.2            |
| Expression value intuition                                      | 6.EE.A.2            |
| Order of operations   | 6.EE.A.2            |
| Parts of algebraic expressions                                  | 6.EE.A.2            |
| Writing basic expressions with variables                        | 6.EE.A.2            |
| Writing basic expressions word problems                         | 6.EE.A.2            |
| Writing expressions with variables                              | 6.EE.A.2            |
| Writing expressions word problems                               | 6.EE.A.2   7.EE.A.2 |
| Combining like terms  | 6.EE.A.3            |
| Create equivalent expressions by factoring                      | 6.EE.A.3            |
| Distributive property with variables                            | 6.EE.A.3            |
| Equivalent expressions  | 6.EE.A.3            |
| Factor with distributive property (variables)                   | 6.EE.A.3            |
| Factor with the distributive property (no variables)            | 6.EE.A.3            |
| Testing solutions to inequalities                               | 6.EE.B.5            |
| Testing solutions to inequalities (basic)                       | 6.EE.B.5            |
| Identify equations from visual models (hanger diagrams)         | 6.EE.B.5   6.EE.B.7 |
| Identify equations from visual models (tape diagrams)           | 6.EE.B.5   6.EE.B.7 |
| Solve equations from visual models                              | 6.EE.B.5   6.EE.B.7 |
| Testing solutions to equations                                  | 6.EE.B.5   6.EE.B.7 |
| Model with one-step equations                                   | 6.EE.B.6   6.EE.B.7 |
| Model with one-step equations and solve                         | 6.EE.B.6   6.EE.B.7 |
| Translate one-step equations and solve                          | 6.EE.B.6   6.EE.B.7 |
| Find the mistake in one-step equations                          | 6.EE.B.7            |
| One-step addition & subtraction equations                       | 6.EE.B.7            |
| One-step addition & subtraction equations: fractions & decimals | 6.EE.B.7            |

7.EE.B.4

7.EE.B.4

7.EE.B.4

7.EE.B.4

#### Operations and Algebraic Thinking

Rational number word problems

One-step inequalities

Two-step equations

Find the mistake: two-step equations

Interpret two-step equation word problems

**Expressions and Equations** Standards Alignment RIT Range: 218-221 6.EE.B.7 One-step multiplication & division equations 6.EE.B.7 One-step multiplication & division equations: fractions & decimals 6.EE.B.7 | 6.EE.B.8 Inequalities word problems Graphing basic inequalities 6.EE.B.8 6.EE.B.8 | 7.EE.B.4 Inequality from graph 6.EE.B.8 | 7.EE.B.4 Plotting inequalities 6.EE.C.9 Independent versus dependent variables 6.EE.C.9 Match equations to coordinates on a line 6.EE.C.9 Relationships between quantities in equations and graphs 6.EE.C.9 Tables from equations with 2 variables RIT Range: 222-226 6.EE.A.2 | 7.EE.A.2 Writing expressions word problems 6.EE.B.8 | 7.EE.B.4 Inequality from graph 6.EE.B.8 | 7.EE.B.4 Plotting inequalities Combining like terms with negative coefficients 7.EE.A.1 7.EE.A.1 Combining like terms with negative coefficients & distribution 7.EE.A.1 Combining like terms with rational coefficients 7.EE.A.1 Distributive property with variables (negative numbers) 7.EE.A.1 Equivalent expressions: negative numbers & distribution 7.EE.A.2 Interpreting linear expressions 7.EE.B.3

| Operations and Aigebraic Thirting                     | 0, 1, 1, 1, 1, 1,   |
|---|---------------------|
| Expressions and Equations                             | Standards Alignment |
| RIT Range: 222-226                                    |                     |
| Two-step equations with decimals and fractions        | 7.EE.B.4            |
| Two-step equations word problems                      | 7.EE.B.4            |
| Two-step inequalities                                 | 7.EE.B.4            |
| Two-step inequality word problems                     | 7.EE.B.4            |
| RIT Range: 227-228                                    |                     |
| <u>Divide powers</u>                                  | 8.EE.A.1            |
| Exponents with integer bases                          | 8.EE.A.1            |
| Exponents with negative fractional bases              | 8.EE.A.1            |
| Multiply & divide powers (integer exponents)          | 8.EE.A.1            |
| Multiply powers                                       | 8.EE.A.1            |
| Negative exponents                                    | 8.EE.A.1            |
| Powers of powers                                      | 8.EE.A.1            |
| Powers of products & quotients                        | 8.EE.A.1            |
| Powers of products & quotients (integer exponents)    | 8.EE.A.1            |
| Powers of products & quotients (structured practice)  | 8.EE.A.1            |
| Properties of exponents challenge (integer exponents) | 8.EE.A.1            |
| <u>Cube roots</u>                                     | 8.EE.A.2            |
| Equations with square roots & cube roots              | 8.EE.A.2            |
| Equations with square roots: decimals & fractions     | 8.EE.A.2            |
| Roots of decimals & fractions                         | 8.EE.A.2            |
| Square and cube challenge                             | 8.EE.A.2            |
| Square roots  | 8.EE.A.2            |
| Scientific notation                                   | 8.EE.A.3            |
| Approximating with powers of 10                       | 8.EE.A.3   8.EE.A.4 |
| Multiplication and division with powers of ten        | 8.EE.A.3   8.EE.A.4 |

| Expressions and Equations                                    | Standards Alignment                                |
|--|--|
| RIT Range: 227-228   |  |
| Adding & subtracting in scientific notation                  | 8.EE.A.4   |
| Multiplying & dividing in scientific notation                | 8.EE.A.4   |
| Scientific notation word problems                            | 8.EE.A.4   |
| Graphing proportional relationships                          | 8.EE.B.5   |
| Rates & proportional relationships                           | 8.EE.B.5   |
| Equations with parentheses                                   | 8.EE.C.7   |
| Equations with parentheses: decimals & fractions             | 8.EE.C.7   |
| Equations with variables on both sides                       | 8.EE.C.7   |
| Equations with variables on both sides: decimals & fractions | 8.EE.C.7   |
| Number of solutions to equations                             | 8.EE.C.7   |
| Number of solutions to equations challenge                   | 8.EE.C.7   |
| Sums of consecutive integers                                 | 8.EE.C.7   |
| Age word problems  | 8.EE.C.8   HSA-CED.A.2   HSA-CED.A.3   HSA-REI.C.6 |
| Systems of equations word problems (1)                       | 8.EE.C.8   HSA-CED.A.2   HSA-CED.A.3   HSA-REI.C.6 |
| Systems of equations word problems (2)                       | 8.EE.C.8   HSA-CED.A.2   HSA-CED.A.3   HSA-REI.C.6 |
| Equivalent systems of equations                              | 8.EE.C.8   HSA-REI.C.5                             |
| Systems of equations with elimination                        | 8.EE.C.8   HSA-REI.C.6                             |
| Systems of equations with elimination challenge              | 8.EE.C.8   HSA-REI.C.6                             |
| Systems of equations with substitution                       | 8.EE.C.8   HSA-REI.C.6                             |
| Solutions of systems of equations                            | 8.EE.C.8   HSA-REI.C.6   HSA-REI.D.11              |
| Systems of equations with graphing                           | 8.EE.C.8   HSA-REI.C.6   HSA-REI.D.11              |
| Linear systems of equations capstone                         | 8.EE.C.8   HSA-REI.C.6   HSA-SSE.B.3               |
| Number of solutions to a system of equations algebraically   | 8.EE.C.8   HSA-REI.D.10   HSA-REI.D.11             |
| Number of solutions to a system of equations graphically     | 8.EE.C.8   HSA-REI.D.10   HSA-REI.D.11             |

**Expressions and Equations** Standards Alignment

RIT Range: 229-242

8.EE.C.8 | HSA-CED.A.2 | HSA-CED.A.3 | HSA-REI.C.6 Age word problems

8.EE.C.8 | HSA-CED.A.2 | HSA-CED.A.3 Systems of equations word problems (1)

| HSA-REI.C.6

8.EE.C.8 | HSA-CED.A.2 | HSA-CED.A.3 Systems of equations word problems (2)

| HSA-REI.C.6

8.EE.C.8 | HSA-REI.C.5 Equivalent systems of equations

8.EE.C.8 | HSA-REI.C.6 Systems of equations with elimination

8.EE.C.8 | HSA-REI.C.6 Systems of equations with elimination challenge

8.EE.C.8 | HSA-REI.C.6 Systems of equations with substitution

8.EE.C.8 | HSA-REI.C.6 | HSA-REI.D.11 Solutions of systems of equations

8.EE.C.8 | HSA-REI.C.6 | HSA-REI.D.11 Systems of equations with graphing

8.EE.C.8 | HSA-REI.C.6 | HSA-SSE.B.3 Linear systems of equations capstone

8.EE.C.8 | HSA-REI.D.10 | HSA-REI.D.11 Number of solutions to a system of equations algebraically

8.EE.C.8 | HSA-REI.D.10 | HSA-REI.D.11 Number of solutions to a system of equations graphically

HSA-APR.A.1 Add & subtract polynomials

HSA-APR.A.1 Add & subtract polynomials: find the error

HSA-APR.A.1 Add & subtract polynomials: two variables (intro)

HSA-APR.A.1 Add polynomials (intro)

HSA-APR.A.1 Multiply binomials

HSA-APR.A.1 Multiply binomials intro

HSA-APR.A.1 Multiply monomials intro

Special products of binomials HSA-APR.A.1

Special products of binomials intro HSA-APR.A.1

HSA-APR.A.1 Subtract polynomials (intro)

Multiply monomials HSA-APR.A.1 | HSA-SSE.A.1

HSA-APR.D.6 Divide polynomials with remainders

HSA-APR.D.6 Divide polynomials with remainders: binomial divisors

Expressions and Equations Standards Alignment

RIT Range: 229-242

Divide polynomials with remainders: monomial divisors

HSA-APR.D.6

Equations & inequalities word problems

HSA-CED.A.1

Multiple units word problems

HSA-CED.A.1

Construct exponential models HSA-CED.A.2

Graphing linear functions word problems

HSA-CED.A.2

Linear models word problems

HSA-CED.A.2

Systems of equations word problems capstone

HSA-CED.A.2 | HSA-CED.A.3 | HSA-

REI.C.6

Constraint solutions of systems of inequalities HSA-CED.A.3

Constraint solutions of two-variable inequalities

HSA-CED.A.3

Solutions of inequalities: algebraic HSA-CED.A.3

Solutions of inequalities: graphical HSA-CED.A.3

Solutions of systems of inequalities

HSA-CED.A.3

Systems of inequalities word problems

HSA-CED.A.3

Two-variable inequalities word problems

HSA-CED.A.3

Manipulate formulas HSA-CED.A.4

Compound inequalities HSA-REI.B.3

Linear equations with unknown coefficients

HSA-REI.B.3

Multi-step linear inequalities

HSA-REI.B.3

Number of solutions of quadratic equations

HSA-REI.B.4

Quadratic formula HSA-REI.B.4

Quadratics by taking square roots

HSA-REI.B.4

Quadratics by taking square roots: strategy HSA-REI.B.4

Solve equations using structure

HSA-REI.B.4 | HSA-SSE.A.2 | HSA-

SSE.B.3

Completing the square HSA-REI.B.4 | HSA-SSE.B.3

Completing the square (intermediate)

HSA-REI.B.4 | HSA-SSE.B.3

Expressions and Equations Standards Alignment

RIT Range: 229-242

Completing the square (intro) HSA-REI.B.4 | HSA-SSE.B.3

Quadratic word problems (standard form)

HSA-REI.B.4 | HSA-SSE.B.3

Quadratics by factoring HSA-REI.B.4 | HSA-SSE.B.3

Quadratics by factoring (intro) HSA-REI.B.4 | HSA-SSE.B.3

Complete solutions to 2-variable equations

HSA-REI.D.10

Solutions to 2-variable equations

HSA-REI.D.10

Interpret equations graphically

HSA-REI.D.11

Graphs of inequalities HSA-REI.D.12

Systems of inequalities graphs HSA-REI.D.12

Two-variable inequalities from their graphs

HSA-REI.D.12

Analyzing structure with linear inequalities HSA-SSE.A.1 | HSA-SSE.B.3

Interpret change in exponential models: changing units

HSA-SSE.A.1 | HSA-SSE.B.3

Interpret change in exponential models: with manipulation HSA-SSE.A.1 | HSA-SSE.B.3

Difference of squares HSA-SSE.A.2

Evaluate expressions using structure HSA-SSE.A.2

Manipulate expressions using structure HSA-SSE.A.2

<u>Difference of squares intro</u>

HSA-SSE.A.2 | HSA-SSE.B.3

Factor monomials HSA-SSE.A.2 | HSA-SSE.B.3

Perfect squares HSA-SSE.A.2 | HSA-SSE.B.3

Convert linear equations to standard form HSA-SSE.B.3

Factor quadratics by grouping

HSA-SSE.B.3

Factoring quadratics intro HSA-SSE.B.3

Features of quadratic functions HSA-SSE.B.3

Features of quadratic functions: strategy HSA-SSE.B.3

Interpret change in exponential models

HSA-SSE.B.3

Interpret time in exponential models

HSA-SSE.B.3

Expressions and Equations Standards Alignment

RIT Range: 229-242

Rewrite exponential expressions HSA-SSE.B.3

Slope from equation HSA-SSE.B.3

RIT Range: 243-252

Add & subtract polynomials: two variables

HSA-APR.A.1

Multiply binomials by polynomials

HSA-APR.A.1

Multiply monomials by polynomials

HSA-APR.A.1

Multiply monomials by polynomials challenge HSA-APR.A.1

Multiply monomials by polynomials: area model HSA-APR.A.1

Multiply monomials HSA-APR.A.1 | HSA-SSE.A.1

Use the Polynomial Remainder Theorem HSA-APR.B.2

Positive & negative intervals of polynomials

HSA-APR.B.3

Find zeros of polynomials

HSA-APR.B.3 | HSA-SSE.A.2 | HSA-

SSE.B.3

Zeros of polynomials & their graphs HSA-APR.B.3 | HSA-SSE.A.2 | HSA-

SSE.B.3

Prove polynomial identities HSA-APR.C.4

Simplify rational expressions (advanced)

HSA-APR.D.6

Simplify rational expressions: common binomial factors

HSA-APR.D.6

Simplify rational expressions: common monomial factors

HSA-APR.D.6

Equations with one rational expression

HSA-REI.A.2

Equations with one rational expression (advanced)

HSA-REI.A.2

Equations with two rational expressions

HSA-REI.A.2

Extraneous solutions of radical equations HSA-REI.A.2

Solve square-root equations

HSA-REI.A.2

Solve square-root equations (basic)

HSA-REI.A.2

Solve quadratic equations: complex solutions

HSA-REI.B.4 | HSN-CN.C.7

Solve equations graphically

HSA-REI.D.11

Expressions and Equations Standards Alignment

RIT Range: 243-252

Factor polynomials: common factor HSA-SSE.A.1 | HSA-SSE.A.2 | HSA-

SSE.B.3

Factoring polynomials challenge HSA-SSE.A.2

Factor polynomials: quadratic methods HSA-SSE.A.2 | HSA-SSE.B.3

Factor polynomials: quadratic methods (challenge)

HSA-SSE.A.2 | HSA-SSE.B.3

Factor polynomials: special product forms HSA-SSE.A.2 | HSA-SSE.B.3

Equivalent forms of exponential expressions HSA-SSE.B.3

Finite geometric series HSA-SSE.B.4

Finite geometric series in sigma notation HSA-SSE.B.4

Finite geometric series word problems

HSA-SSE.B.4

| Use Functions to Model Relationships        | Standards Alignment                      |
|---|--|
| RIT Range: 189-200                          |  |
| Math patterns 1                             | 3.OA.D.9                                 |
| Patterns with even and odd                  | 3.OA.D.9                                 |
| RIT Range: 201-210                          |  |
| Math patterns 2                             | 4.OA.C.5                                 |
| RIT Range: 211-217                          |  |
| Coordinate plane word problems (quadrant 1) | 5.G.A.2                                  |
| Graph points                                | 5.G.A.2                                  |
| Identify coordinates                        | 5.G.A.2                                  |
| <u>Identify points</u>                      | 5.G.A.2                                  |
| Graphs of rules that relate 2 variables     | 5.OA.B.3                                 |
| Identify points on a line                   | 5.OA.B.3                                 |
| Relationships between 2 patterns            | 5.OA.B.3                                 |
| Tables from rules that relate 2 variables   | 5.OA.B.3                                 |
| Write rules that relate 2 variables         | 5.OA.B.3                                 |
| RIT Range: 227-228                          |  |
| Complete solutions to 2-variable equations  | 8.F.A.1                                  |
| Slope-intercept equation from graph         | 8.F.A.1   8.F.A.3   8.F.B.4   HSF-LE.A.2 |
| Slope-intercept from two points             | 8.F.A.1   8.F.A.3   8.F.B.4   HSF-LE.A.2 |
| Graph from slope-intercept form             | 8.F.A.1   8.F.A.3   HSF-IF.C.7           |
| Linear equations in any form                | 8.F.A.1   8.F.A.3   HSF-LE.A.2           |
| Function rules from equations (1)           | 8.F.A.1   HSF-IF.A.1                     |
| Function rules from equations (2)           | 8.F.A.1   HSF-IF.A.1                     |
| Recognize functions from graphs             | 8.F.A.1   HSF-IF.A.1                     |
| Recognize functions from tables             | 8.F.A.1   HSF-IF.A.1                     |
| Evaluate function expressions               | 8.F.A.1   HSF-IF.A.1   HSF-IF.A.2        |

Use Functions to Model Relationships Standards Alignment

RIT Range: 227-228

| Evaluate functions from their graph (1) | 8.F.A.1   HSF-IF.A.1   HSF-IF.A.2 |
|---|-----------------------------------|
| Evaluate functions from their graph (2) | 8.F.A.1   HSF-IF.A.1   HSF-IF.A.2 |
| Function inputs & outputs: equation     | 8.F.A.1   HSF-IF.A.1   HSF-IF.A.2 |
| Evaluate functions (1)                  | 8.F.A.1   HSF-IF.A.2              |
| Evaluate functions (2)                  | 8.F.A.1   HSF-IF.A.2              |
| Function notation word problems         | 8.F.A.1   HSF-IF.A.2              |
| Determine the domain of functions       | 8.F.A.1   HSF-IF.B.5              |
| Domain and range from graph             | 8.F.A.1   HSF-IF.B.5              |
| Function domain word problems           | 8.F.A.1   HSF-IF.B.5              |
| Graph from linear standard form         | 8.F.A.1   HSF-IF.C.7              |
| Intercepts from a graph                 | 8.F.A.1   HSF-IF.C.7              |
| Intercepts from a table                 | 8.F.A.1   HSF-IF.C.7              |
| Linear equations word problems (1)      | 8.F.A.1   HSF-LE.B.5              |
| Linear equations word problems (2)      | 8.F.A.1   HSF-LE.B.5              |
| Compare linear functions (1)            | 8.F.A.2   HSF-IF.C.9              |
| Compare linear functions (2)            | 8.F.A.2   HSF-IF.C.9              |
| Intercepts from an equation             | 8.F.A.3                           |
| <u>Linear &amp; nonlinear functions</u> | 8.F.A.3                           |
| Slope from two points                   | 8.F.B.4                           |
| Slope-intercept intro                   | 8.F.B.4   HSF-IF.C.7   HSF-LE.A.2 |
| Slope from equation                     | 8.F.B.4   HSF-IF.C.8              |
| Slope from graph                        | 8.F.B.4   HSF-LE.A.2              |
| Interpreting graphs of functions        | 8.F.B.5                           |
| Relative maxima and minima              | 8.F.B.5   HSF-IF.C.7              |

Standards Alignment

## Operations and Algebraic Thinking

Use Functions to Model Relationships

#### RIT Range: 229-242

| Slope-intercept equation from graph     | 8.F.A.1   8.F.A.3   8.F.B.4   HSF-LE.A.2 |
|---|--|
| Slope-intercept from two points         | 8.F.A.1   8.F.A.3   8.F.B.4   HSF-LE.A.2 |
| Graph from slope-intercept form         | 8.F.A.1   8.F.A.3   HSF-IF.C.7           |
| Linear equations in any form            | 8.F.A.1   8.F.A.3   HSF-LE.A.2           |
| Function rules from equations (1)       | 8.F.A.1   HSF-IF.A.1                     |
| Function rules from equations (2)       | 8.F.A.1   HSF-IF.A.1                     |
| Recognize functions from graphs         | 8.F.A.1   HSF-IF.A.1                     |
| Recognize functions from tables         | 8.F.A.1   HSF-IF.A.1                     |
| Evaluate function expressions           | 8.F.A.1   HSF-IF.A.1   HSF-IF.A.2        |
| Evaluate functions from their graph (1) | 8.F.A.1   HSF-IF.A.1   HSF-IF.A.2        |
| Evaluate functions from their graph (2) | 8.F.A.1   HSF-IF.A.1   HSF-IF.A.2        |
| Function inputs & outputs: equation     | 8.F.A.1   HSF-IF.A.1   HSF-IF.A.2        |
| Evaluate functions (1)                  | 8.F.A.1   HSF-IF.A.2                     |
| Evaluate functions (2)                  | 8.F.A.1   HSF-IF.A.2                     |
| Function notation word problems         | 8.F.A.1   HSF-IF.A.2                     |
| Determine the domain of functions       | 8.F.A.1   HSF-IF.B.5                     |
| Domain and range from graph             | 8.F.A.1   HSF-IF.B.5                     |
| Function domain word problems           | 8.F.A.1   HSF-IF.B.5                     |
| Graph from linear standard form         | 8.F.A.1   HSF-IF.C.7                     |
| Intercepts from a graph                 | 8.F.A.1   HSF-IF.C.7                     |
| Intercepts from a table                 | 8.F.A.1   HSF-IF.C.7                     |
| Linear equations word problems (1)      | 8.F.A.1   HSF-LE.B.5                     |
| Linear equations word problems (2)      | 8.F.A.1   HSF-LE.B.5                     |
| Compare linear functions (1)            | 8.F.A.2   HSF-IF.C.9                     |
| Compare linear functions (2)            | 8.F.A.2   HSF-IF.C.9                     |
| Slope-intercept intro                   | 8.F.B.4   HSF-IF.C.7   HSF-LE.A.2        |

Use Functions to Model Relationships Standards Alignment

RIT Range: 229-242

Slope from equation 8.F.B.4 | HSF-IF.C.8

Slope from graph 8.F.B.4 | HSF-LE.A.2

Sequences word problems

HSF-BF.A.1 | HSF-BF.A.2 | HSF-LE.A.1 |

HSF-LE.A.2

<u>Linear models word problems</u>

HSF-BF.A.1 | HSF-IF.B.4 | HSF-LE.A.2 |

HSF-LE.B.5

Construct exponential models

HSF-BF.A.1 | HSF-LE.A.2

Writing linear functions word problems (1)

HSF-BF.A.1 | HSF-LE.A.2

Writing linear functions word problems (2)

HSF-BF.A.1 | HSF-LE.A.2

Converting recursive & explicit forms of arithmetic sequences

HSF-BF.A.2

Converting recursive & explicit forms of geometric sequences

HSF-BF.A.2

Explicit formulas for arithmetic sequences

HSF-BF.A.2 | HSF-LE.A.2

Explicit formulas for geometric sequences

HSF-BF.A.2 | HSF-LE.A.2

Recursive formulas for arithmetic sequences HSF-BF.A.2 | HSF-LE.A.2

Recursive formulas for geometric sequences HSF-BF.A.2 | HSF-LE.A.2

Graphs of exponential functions

HSF-BF.B.3 | HSF-IF.C.7

Domain of advanced functions HSF-IF.A.1

Range of quadratic functions HSF-IF.A.1

Function inputs & outputs: graph

HSF-IF.A.1 | HSF-IF.A.2

Evaluate sequences in recursive form HSF-IF.A.2

Use arithmetic sequence formulas

HSF-IF.A.2

Use geometric sequence formulas HSF-IF.A.2

Linear equations word problems: graphs

HSF-IF.B.4

Linear equations word problems: tables

HSF-IF.B.4

Quadratic word problems (standard form) HSF-IF.B.4 | HSF-IF.C.8

Comparing linear functions word problems

HSF-IF.B.4 | HSF-IF.C.9 | HSF-LE.B.5

Graph parabolas in all forms

HSF-IF.C.7

Interpret change in exponential models

Use Functions to Model Relationships Standards Alignment RIT Range: 229-242 HSF-IF.C.7 Graph quadratics in factored form HSF-IF.C.7 Graph quadratics in standard form HSF-IF.C.7 Graph quadratics in vertex form HSF-IF.C.7 Graphing exponential growth & decay HSF-IF.C.7 Graphing linear functions word problems HSF-IF.C.7 Increasing and decreasing intervals HSF-IF.C.7 Positive and negative intervals HSF-IF.C.7 | HSF-LE.A.2 Horizontal & vertical lines HSF-IF.C.8 Completing the square HSF-IF.C.8 Completing the square (intermediate) HSF-IF.C.8 Completing the square (intro) HSF-IF.C.8 Convert linear equations to standard form HSF-IF.C.8 Difference of squares HSF-IF.C.8 Difference of squares intro HSF-IF.C.8 Factor monomials HSF-IF.C.8 Factor quadratics by grouping HSF-IF.C.8 Factoring quadratics intro HSF-IF.C.8 Features of quadratic functions Features of quadratic functions: strategy HSF-IF.C.8 HSF-IF.C.8 Perfect squares HSF-IF.C.8 Quadratics by factoring HSF-IF.C.8 Quadratics by factoring (intro) Rewrite exponential expressions HSF-IF.C.8 Solve equations using structure HSF-IF.C.8 HSF-IF.C.8 | HSF-IF.C.9 Compare features of functions

HSF-IF.C.8 | HSF-LE.B.5

Use Functions to Model Relationships Standards Alignment

RIT Range: 229-242

Interpret change in exponential models: changing units

HSF-IF.C.8 | HSF-LE.B.5

Interpret change in exponential models: with manipulation HSF-IF.C.8 | HSF-LE.B.5

Interpret time in exponential models

HSF-IF.C.8 | HSF-LE.B.5

Compare quadratic functions HSF-IF.C.9

Exponential vs. linear models

HSF-LE.A.1

Linear vs. exponential growth: from data

HSF-LE.A.1

Exponential functions from tables & graphs

HSF-LE.A.2

Point-slope form HSF-LE.A.2

Exponential vs. linear growth over time HSF-LE.A.3

RIT Range: 243-252

Relative maxima and minima 8.F.B.5 | HSF-IF.C.7

Model with function combination HSF-BF.A.1

Modeling with sinusoidal functions

HSF-BF.A.1 | HSF-TF.B.5

Even & odd functions HSF-BF.B.3

Even & odd polynomials HSF-BF.B.3

Shift functions HSF-BF.B.3

Transforming functions HSF-BF.B.3

Graph sinusoidal functions HSF-BF.B.3 | HSF-IF.C.7

Graphs of logarithmic functions

HSF-BF.B.3 | HSF-IF.C.7

Radical functions & their graphs

HSF-BF.B.3 | HSF-IF.C.7

Construct sinusoidal functions HSF-BF.B.3 | HSF-TF.B.5

Domain of advanced piecewise functions

HSF-IF.A.1

Evaluate piecewise functions HSF-IF.A.2 | HSF-IF.C.7

Evaluate step functions HSF-IF.A.2 | HSF-IF.C.7

End behavior of algebraic models

HSF-IF.B.4

Use Functions to Model Relationships Standards Alignment RIT Range: 243-252 HSF-IF.B.4 Graph interpretation word problems HSF-IF.B.4 Periodicity of algebraic models HSF-IF.B.6 Average rate of change HSF-IF.B.6 Average rate of change word problems HSF-IF.B.6 Average rate of change: graphs & tables HSF-IF.C.7 Absolute maxima and minima HSF-IF.C.7 Amplitude of sinusoidal functions from equation HSF-IF.C.7 Amplitude of sinusoidal functions from graph HSF-IF.C.7 Analyze vertical asymptotes of rational functions HSF-IF.C.7 End behavior of polynomials HSF-IF.C.7 End behavior of rational functions HSF-IF.C.7 Graph absolute value functions HSF-IF.C.7 Graphs of nonlinear piecewise functions HSF-IF.C.7 Graphs of rational functions HSF-IF.C.7 Midline of sinusoidal functions from equation HSF-IF.C.7 Midline of sinusoidal functions from graph HSF-IF.C.7 Period of sinusoidal functions from equation HSF-IF.C.7 Period of sinusoidal functions from graph HSF-IF.C.7 Piecewise functions graphs HSF-IF.C.7 Positive & negative intervals of polynomials HSF-IF.C.7 Rational function points of discontinuity HSF-IF.C.7 | HSF-IF.C.8 Zeros of polynomials & their graphs Equivalent forms of exponential expressions HSF-IF.C.8 Factor polynomials: common factor HSF-IF.C.8 HSF-IF.C.8 Factor polynomials: quadratic methods

Factor polynomials: quadratic methods (challenge)

HSF-IF.C.8

HSF-LE.A.4

#### Operations and Algebraic Thinking

Evaluate logarithms: change of base rule

Use Functions to Model Relationships Standards Alignment RIT Range: 243-252 Factor polynomials: special product forms HSF-IF.C.8 HSF-IF.C.8 Find zeros of polynomials HSF-LE.A.4 Exponential model word problems Solve exponential equations using logarithms: base-10 and base-e HSF-LE.A.4 HSF-LE.A.4 Solve exponential equations using logarithms: base-2 and other bases Modeling with sinusoidal functions: phase shift HSF-TF.B.5 Use the Pythagorean identity HSF-TF.C.8 RIT Range: >253 HSF-BF.A.1 Model with composite functions

| Ratios and Proportional Relationships        | Standards Alignment |
|--|---------------------|
| RIT Range: 201-210                           |                     |
| Convert to smaller units (c, pt, qt, & gal)  | 4.MD.A.1            |
| Convert to smaller units (g and kg)          | 4.MD.A.1            |
| Convert to smaller units (in, ft, yd, & mi)  | 4.MD.A.1            |
| Convert to smaller units (mL and L)          | 4.MD.A.1            |
| Convert to smaller units (mm, cm, m, & km)   | 4.MD.A.1            |
| Convert to smaller units (oz and lb)         | 4.MD.A.1            |
| Convert to smaller units (sec, min, & hr)    | 4.MD.A.1            |
| Convert money word problems                  | 4.MD.A.2            |
| Metric conversions word problems             | 4.MD.A.2            |
| US customary conversion word problems        | 4.MD.A.2            |
| RIT Range: 211-217                           |                     |
| Convert units (metrics)                      | 5.MD.A.1            |
| Convert units (US customary)                 | 5.MD.A.1            |
| Convert units word problems (metric)         | 5.MD.A.1            |
| Convert units word problems (US customary)   | 5.MD.A.1            |
| RIT Range: 218-221                           |                     |
| Basic ratios                                 | 6.RP.A.1            |
| Create double number lines                   | 6.RP.A.1   6.RP.A.3 |
| Equivalent ratios                            | 6.RP.A.1   6.RP.A.3 |
| Ratios with double number lines              | 6.RP.A.1   6.RP.A.3 |
| Ratios with tape diagrams                    | 6.RP.A.1   6.RP.A.3 |
| Relate double numbers lines and ratio tables | 6.RP.A.1   6.RP.A.3 |
| <u>Unit rates</u>                            | 6.RP.A.2            |
| Comparing rates                              | 6.RP.A.2   6.RP.A.3 |
| Rate problems                                | 6.RP.A.2   6.RP.A.3 |

Ratios and Proportional Relationships Standards Alignment RIT Range: 218-221 6.RP.A.3 Convert decimals to percents 6.RP.A.3 Convert percents to decimals 6.RP.A.3 Convert percents to fractions 6.RP.A.3 Equivalent ratio word problems 6.RP.A.3 Equivalent ratio word problems (basic) 6.RP.A.3 Equivalent ratios in the real world 6.RP.A.3 Finding percents 6.RP.A.3 Intro to percents 6.RP.A.3 Part-part-whole ratios 6.RP.A.3 Percent word problems 6.RP.A.3 Percents from fraction models 6.RP.A.3 Percents from tape diagrams 6.RP.A.3 Ratio tables 6.RP.A.3 Ratios and units of measurement 6.RP.A.3 Ratios on coordinate plane 6.RP.A.3 Relate fractions, decimals, and percents 6.RP.A.3 Understand equivalent ratios in the real world 6.RP.A.3 | 7.RP.A.3 Equivalent representations of percent problems 6.RP.A.3 | 7.RP.A.3 Proportion word problems RIT Range: 222-226 6.RP.A.3 | 7.RP.A.3 Equivalent representations of percent problems 6.RP.A.3 | 7.RP.A.3 Proportion word problems 7.RP.A.1 Rates with fractions 7.RP.A.2 Compare constants of proportionality 7.RP.A.2 Constant of proportionality from equations

Ratios and Proportional Relationships Standards Alignment RIT Range: 222-226 7.RP.A.2 Constant of proportionality from graphs 7.RP.A.2 Constant of proportionality from tables 7.RP.A.2 Constant of proportionality from tables (with equations) Identify proportional relationships 7.RP.A.2 7.RP.A.2 Identify proportional relationships from graphs 7.RP.A.2 Interpret constant of proportionality in graphs 7.RP.A.2 Interpret constants of proportionality 7.RP.A.2 Interpreting graphs of proportional relationships 7.RP.A.2 Proportional relationships 7.RP.A.2 **Solving proportions** 7.RP.A.2 Writing proportional equations 7.RP.A.2 Writing proportional equations from tables 7.RP.A.2 Writing proportions 7.RP.A.3 Discount, markup, and commission word problems 7.RP.A.3 Equivalent expressions with percent problems 7.RP.A.3 Percent problems 7.RP.A.3 Tax and tip word problems

Perform Operations Standards Alignment RIT Range: 189-200 3.NBT.A.2 Add using groups of 10 and 100 3.NBT.A.2 Add within 1000 3.NBT.A.2 Break apart 3-digit addition problems Estimate to add and subtract multi-digit whole numbers 3.NBT.A.2 3.NBT.A.2 Subtract within 1000 3.NBT.A.3 Multiply by tens 3.NBT.A.3 Multiply by tens word problems 3.OA.A.1 Meaning of multiplication 3.OA.A.2 **Divide with visuals** 3.OA.A.2 Meaning of division 3.OA.A.3 Multiplication and division word problems (within 100) 3.OA.A.3 Relate division to multiplication word problems 3.OA.B.5 Associative property of multiplication 3.OA.B.6 Relate division to multiplication 3.OA.C.7 **Basic division** 3.OA.C.7 Basic multiplication 3.OA.C.7 Divide by 1 3.OA.C.7 Divide by 10 3.OA.C.7 Divide by 2 3.OA.C.7 Divide by 3 3.OA.C.7 Divide by 4 3.OA.C.7 Divide by 5 3.OA.C.7 Divide by 6 3.OA.C.7 Divide by 7 3.OA.C.7 Divide by 8 3.OA.C.7 Divide by 9

| Perform Operations  | Standards Alignment |
|---|---------------------|
| RIT Range: 189-200  |                     |
| Find missing divisors and dividends (1-digit division)      | 3.OA.C.7            |
| Multiply by 0 or 1  | 3.OA.C.7            |
| Multiply by 2   | 3.OA.C.7            |
| Multiply by 3   | 3.OA.C.7            |
| Multiply by 4   | 3.OA.C.7            |
| Multiply by 5   | 3.OA.C.7            |
| Multiply by 6   | 3.OA.C.7            |
| Multiply by 7   | 3.OA.C.7            |
| Multiply by 8   | 3.OA.C.7            |
| Multiply by 9   | 3.OA.C.7            |
| Relate repeated addition to multiplication                  | 3.OA.C.7            |
| Whole numbers on the number line                            | 3.OA.C.7            |
| 2-step estimation word problems                             | 3.OA.D.8            |
| 2-step word problems  | 3.OA.D.8            |
| RIT Range: 201-210  |                     |
| Telling time word problems                                  | 4.MD.A.2            |
| Multi-digit addition  | 4.NBT.B.4           |
| Multi-digit subtraction                                     | 4.NBT.B.4           |
| Multiply 1-digit numbers by 10, 100, and 1000               | 4.NBT.B.5           |
| Multiply 1-digit numbers by a multiple of 10, 100, and 1000 | 4.NBT.B.5           |
| Multiply 2-, 3-, and 4-digits by 1-digit with area models   | 4.NBT.B.5           |
| Multiply 2-digit numbers                                    | 4.NBT.B.5           |
| Multiply 2-digit numbers with area models                   | 4.NBT.B.5           |
| Multiply using place value                                  | 4.NBT.B.5           |
| Multiply with regrouping                                    | 4.NBT.B.5           |

| Perform Operations   | Standards Alignment |
|--|---------------------|
| RIT Range: 201-210   |                     |
| Multiply without regrouping  | 4.NBT.B.5           |
| Multiplying 10s  | 4.NBT.B.5           |
| Cancel zeros when dividing   | 4.NBT.B.6           |
| Divide by 1-digit numbers (no remainders)                            | 4.NBT.B.6           |
| Divide by 1-digit numbers (visual models)                            | 4.NBT.B.6           |
| Divide using place value   | 4.NBT.B.6           |
| Divide with remainders   | 4.NBT.B.6           |
| Divide with remainders (basic)                                       | 4.NBT.B.6           |
| Intro to remainders  | 4.NBT.B.6           |
| Quotients that are multiples of 10                                   | 4.NBT.B.6           |
| Zeros in the dividend (no remainders)                                | 4.NBT.B.6           |
| Zeros in the quotient (no remainders)                                | 4.NBT.B.6           |
| Add and subtract fractions word problems (same denominator)          | 4.NF.B.3            |
| Add and subtract mixed numbers (no regrouping)                       | 4.NF.B.3            |
| Add and subtract mixed numbers (with regrouping)                     | 4.NF.B.3            |
| Add and subtract mixed numbers word problems (like denominators)     | 4.NF.B.3            |
| Add fractions with common denominators                               | 4.NF.B.3            |
| Decompose fractions  | 4.NF.B.3            |
| Subtract fractions with common denominators                          | 4.NF.B.3            |
| Equivalent unit fraction and whole number multiplication expressions | 4.NF.B.4            |
| Multiply fractions and whole numbers intuition                       | 4.NF.B.4            |
| Multiply unit fractions and whole numbers                            | 4.NF.B.4            |
| Multiply fractions and whole numbers                                 | 4.NF.B.4   5.NF.B.4 |
| Interpret multiplying fraction and whole number word problems        | 4.NF.B.4   5.NF.B.6 |
| Multiply fractions and whole numbers word problems                   | 4.NF.B.4   5.NF.B.6 |
| Add fractions (denominators 10 & 100)                                | 4.NF.C.5            |

| Perform Operations  | Standards Alignment |
|---|---------------------|
| RIT Range: 201-210  |                     |
| Equivalent expressions with common denominators (denominators 10 & 100) | 4.NF.C.5            |
| Equivalent fractions (denominators 10 & 100)                            | 4.NF.C.5            |
| Equivalent fractions with fraction models (denominators 10 & 100)       | 4.NF.C.5            |
| Decimals in words   | 4.NF.C.6            |
| Decimals on the number line: hundredths 0-0.1                           | 4.NF.C.6            |
| Decimals on the number line: tenths 0-1                                 | 4.NF.C.6            |
| Place value for decimals greater than 1                                 | 4.NF.C.6            |
| Rewrite decimals as fractions   | 4.NF.C.6            |
| Rewrite fractions as decimals (denominators of 10 & 100)                | 4.NF.C.6            |
| Write decimal numbers shown in grids                                    | 4.NF.C.6            |
| Write number as a fraction and decimal                                  | 4.NF.C.6            |
| Compare with multiplication   | 4.OA.A.1            |
| Compare with multiplication word problems                               | 4.OA.A.1            |
| Multiplication and division word problems                               | 4.OA.A.2            |
| Multi-step estimation word problems                                     | 4.OA.A.3            |
| Multi-step word problems with whole numbers                             | 4.OA.A.3            |
| Factor pairs  | 4.OA.B.4            |
| Identify composite numbers  | 4.OA.B.4            |
| Identify factors and multiples  | 4.OA.B.4            |
| Identify prime numbers  | 4.OA.B.4            |
| RIT Range: 211-217  |                     |
| Multiply fractions and whole numbers                                    | 4.NF.B.4   5.NF.B.4 |
| Interpret multiplying fraction and whole number word problems           | 4.NF.B.4   5.NF.B.6 |
| Multiply fractions and whole numbers word problems                      | 4.NF.B.4   5.NF.B.6 |
| Multiply and divide by powers of 10                                     | 5.NBT.A.2           |

Perform Operations Standards Alignment RIT Range: 211-217 5.NBT.A.2 Multiply and divide decimals by 10 5.NBT.A.2 Multiply and divide decimals by 10, 100, and 1000 5.NBT.A.2 Multiply and divide whole numbers by 10, 100, and 1000 5.NBT.B.5 Estimate multi-digit multiplication problems Multi-digit multiplication 5.NBT.B.5 5.NBT.B.5 Multiply by taking out factors of 10 5.NBT.B.6 Basic multi-digit division 5.NBT.B.6 Divide by taking out factors of 10 5.NBT.B.6 Estimate multi-digit division problems 5.NBT.B.7 Add decimals like 0.7+0.5 5.NBT.B.7 Add decimals like 0.76+0.21 5.NBT.B.7 Add decimals like 4+5.7 5.NBT.B.7 Add decimals like 40.1+7.6 5.NBT.B.7 Add decimals like 47.75+11.98 5.NBT.B.7 Add decimals like 5.53+6.1 5.NBT.B.7 Add decimals visually 5.NBT.B.7 Divide decimals and whole numbers by 0.1 or 0.01 5.NBT.B.7 Divide decimals like 0.72÷0.08 5.NBT.B.7 Divide decimals like 1.32÷0.12 5.NBT.B.7 Divide decimals like 1.86÷2 5.NBT.B.7 Divide decimals like 16.8÷40 by factoring out a 10 5.NBT.B.7 Divide decimals visually Divide whole numbers like 63÷12 to get a decimal 5.NBT.B.7 5.NBT.B.7 Divide whole numbers like 7÷5 to get a decimal 5.NBT.B.7 Divide whole numbers like 80÷200 to get a decimal 5.NBT.B.7 Estimating with adding decimals

| Perform Operations  | Standards Alignment  |
|---|----------------------|
| RIT Range: 211-217  |                      |
| Estimating with dividing decimals                                       | 5.NBT.B.7            |
| Estimating with multiplying decimals                                    | 5.NBT.B.7            |
| Estimating with subtracting decimals                                    | 5.NBT.B.7            |
| Multiply decimals like 0.56x4   | 5.NBT.B.7            |
| Multiply decimals like 0.6x0.4  | 5.NBT.B.7            |
| Multiply decimals like 1.7x0.12   | 5.NBT.B.7            |
| Multiply decimals visually  | 5.NBT.B.7            |
| Subtract decimals like 0.6-0.43   | 5.NBT.B.7            |
| Subtract decimals like 0.75-0.56  | 5.NBT.B.7            |
| Subtract decimals like 0.9-0.7  | 5.NBT.B.7            |
| Subtract decimals like 1.6-0.3  | 5.NBT.B.7            |
| Subtract decimals like 15-7.45  | 5.NBT.B.7            |
| Subtract decimals like 56.8-17.9  | 5.NBT.B.7            |
| Subtract decimals like 67.89-6  | 5.NBT.B.7            |
| Subtract decimals like 78.4-3   | 5.NBT.B.7            |
| Subtract decimals visually  | 5.NBT.B.7            |
| Multiplying decimals like 4x0.6 (standard algorithm)                    | 5.NBT.B.7   6.NS.B.3 |
| Add and subtract fractions challenge                                    | 5.NF.A.1             |
| Add and subtract mixed numbers with unlike denominators (no regrouping) | 5.NF.A.1             |
| Add and subtract mixed numbers with unlike denominators (regrouping)    | 5.NF.A.1             |
| Add fractions with unlike denominators                                  | 5.NF.A.1             |
| Equivalent expressions with common denominators                         | 5.NF.A.1             |
| Subtracting fractions with unlike denominators                          | 5.NF.A.1             |
| Visually add and subtract fractions                                     | 5.NF.A.1             |
| Add and subtract fractions word problems                                | 5.NF.A.2             |

Perform Operations Standards Alignment RIT Range: 211-217 5.NF.B.3 Fractions as division word problems 5.NF.B.4 Area of rectangles with fraction side lengths 5.NF.B.4 Multiply fractions and whole numbers visually 5.NF.B.4 Multiply mixed numbers 5.NF.B.4 Multiplying fractions 5.NF.B.4 Multiplying fractions with visuals 5.NF.B.5 Fraction multiplication as scaling 5.NF.B.6 Multiply fractions word problems 5.NF.B.7 Dividing unit fractions by whole numbers 5.NF.B.7 Dividing unit fractions by whole numbers visually 5.NF.B.7 Dividing whole numbers by unit fractions 5.NF.B.7 Dividing whole numbers by unit fractions visually RIT Range: 218-221 5.NBT.B.7 | 6.NS.B.3 Multiplying decimals like 4x0.6 (standard algorithm) **Divide mixed numbers** 6.NS.A.1 6.NS.A.1 Divide whole numbers by fractions 6.NS.A.1 Dividing fractions 6.NS.A.1 **Dividing fractions word problems** 6.NS.B.2 Division by 2-digits 6.NS.B.2 Multi-digit division 6.NS.B.3 Adding & subtracting decimals word problems 6.NS.B.3 Adding decimals: thousandths 6.NS.B.3 Dividing decimals: hundredths 6.NS.B.3 Dividing decimals: thousandths 6.NS.B.3 Dividing whole numbers like 56÷35 to get a decimal

| Perform Operations   | Standards Alignment |
|--|---------------------|
| RIT Range: 218-221   |                     |
| Multiplying decimals like 0.847x3.54 (standard algorithm)      | 6.NS.B.3            |
| Multiplying decimals like 2.45x3.6 (standard algorithm)        | 6.NS.B.3            |
| Subtracting decimals: thousandths                              | 6.NS.B.3            |
| GCF & LCM word problems  | 6.NS.B.4            |
| Greatest common factor   | 6.NS.B.4            |
| Least common multiple  | 6.NS.B.4            |
| RIT Range: 222-226   |                     |
| Absolute value to find distance                                | 7.NS.A.1            |
| Absolute value to find distance challenge                      | 7.NS.A.1            |
| Adding & subtracting negative fractions                        | 7.NS.A.1            |
| Adding & subtracting negative numbers                          | 7.NS.A.1            |
| Adding & subtracting rational numbers                          | 7.NS.A.1            |
| Adding negative numbers  | 7.NS.A.1            |
| Adding negative numbers on the number line                     | 7.NS.A.1            |
| Addition & subtraction: find the missing value                 | 7.NS.A.1            |
| Equivalent expressions with negative numbers                   | 7.NS.A.1            |
| Interpret negative number addition and subtraction expressions | 7.NS.A.1            |
| Missing numbers on the number line                             | 7.NS.A.1            |
| Number equations & number lines                                | 7.NS.A.1            |
| Ordering negative number expressions                           | 7.NS.A.1            |
| Signs of sums  | 7.NS.A.1            |
| Substitution with negative numbers                             | 7.NS.A.1            |
| Subtracting negative numbers                                   | 7.NS.A.1            |
| Understand subtraction as adding the opposite                  | 7.NS.A.1            |
| Order of operations with negative numbers                      | 7.NS.A.1   7.NS.A.2 |

Perform Operations Standards Alignment RIT Range: 222-226 7.NS.A.1 | 7.NS.A.3 Interpreting negative number statements 7.NS.A.1 | 7.NS.A.3 Negative number addition and subtraction: word problems 7.NS.A.2 Converting fractions to decimals 7.NS.A.2 Dividing by zero 7.NS.A.2 Dividing mixed numbers with negatives 7.NS.A.2 Dividing positive and negative fractions 7.NS.A.2 Equivalent expressions with negative numbers (multiplication and division) 7.NS.A.2 Exponents with integer bases 7.NS.A.2 Multiplying & dividing negative numbers word problems 7.NS.A.2 Multiplying negative numbers 7.NS.A.2 Multiplying positive and negative fractions 7.NS.A.2 Negative signs in fractions 7.NS.A.2 Order rational numbers 7.NS.A.2 Signs of expressions 7.NS.A.2 Signs of expressions challenge 7.NS.A.2 | 7.NS.A.3 Simplify complex fractions RIT Range: 229-242 HSN-Q.A.1 Interpret units in formulas HSN-Q.A.1 Multiple units word problems RIT Range: 243-252 HSN-CN.A.1 Classify complex numbers HSN-CN.A.1 Parts of complex numbers HSN-CN.A.1 Simplify roots of negative numbers HSN-CN.A.2 Add & subtract complex numbers HSN-CN.A.2 Multiply complex numbers

Perform Operations Standards Alignment

RIT Range: 243-252

Multiply complex numbers (basic)

HSN-CN.A.2

Powers of the imaginary unit HSN-CN.A.2

Extend and Use Properties Standards Alignment RIT Range: 189-200 3.NF.A.1 Identify numerators and denominators 3.NF.A.1 Identify unit fractions 3.NF.A.1 Recognize fractions 3.NF.A.1 Recognize fractions greater than 1 3.NF.A.3 Compare fractions of different wholes 3.NF.A.3 Compare fractions with the same denominator 3.NF.A.3 Compare fractions with the same numerator Compare fractions with the same numerator or denominator 3.NF.A.3 3.NF.A.3 Equivalent fractions on the number line 3.NF.A.3 Relate fractions to 1 3.NF.A.3 Write fractions as whole numbers RIT Range: 201-210 4.NF.A.1 Equivalent fractions 4.NF.A.1 Equivalent fractions (fraction models) Common denominators 4.NF.A.2 4.NF.A.2 Compare fractions and mixed numbers 4.NF.A.2 Compare fractions with different numerators and denominators 4.NF.A.2 Equivalent fractions and different wholes 4.NF.A.2 Order fractions 4.NF.A.2 Visually compare fractions with unlike denominators 4.NF.B.3 Rewrite mixed numbers and improper fractions 4.NF.C.5 Decompose fractions with denominators of 100 4.NF.C.6 Decimals on the number line: hundredths 4.NF.C.6 Decimals on the number line: tenths 4.NF.C.7 Compare decimals (tenths and hundredths)

| Extend and Use Properties                       | Standards Alignment |
|---|---------------------|
| RIT Range: 201-210                              |                     |
| Compare decimals and fractions                  | 4.NF.C.7            |
| Compare decimals visually                       | 4.NF.C.7            |
| RIT Range: 211-217                              |                     |
| Graph points                                    | 5.G.A.1             |
| Identify coordinates                            | 5.G.A.1             |
| Identify points                                 | 5.G.A.1             |
| Compare decimals challenge                      | 5.NBT.A.3           |
| Compare decimals through thousandths            | 5.NBT.A.3           |
| Compare decimals word problems                  | 5.NBT.A.3           |
| Order decimals                                  | 5.NBT.A.3           |
| Fractions as division                           | 5.NF.B.3            |
| RIT Range: 218-221                              |                     |
| Interpreting negative numbers                   | 6.NS.C.5            |
| Missing numbers on the number line              | 6.NS.C.6            |
| Negative decimals on the number line            | 6.NS.C.6            |
| Negative numbers on the number line             | 6.NS.C.6            |
| Negative symbol as opposite                     | 6.NS.C.6            |
| Number opposites                                | 6.NS.C.6            |
| Number opposites challenge                      | 6.NS.C.6            |
| Points on the coordinate plane                  | 6.NS.C.6            |
| Quadrants on the coordinate plane               | 6.NS.C.6            |
| Rational numbers on the number line             | 6.NS.C.6            |
| Coordinate plane problems in all four quadrants | 6.NS.C.6   6.NS.C.8 |
| Distance between points: vertical or horizontal | 6.NS.C.6   6.NS.C.8 |
| Compare and order absolute values               | 6.NS.C.7            |

## The Real and Complex Number Systems

Extend and Use Properties Standards Alignment RIT Range: 218-221 6.NS.C.7 Compare rational numbers 6.NS.C.7 Comparing absolute values challenge 6.NS.C.7 Finding absolute values 6.NS.C.7 Interpreting absolute value 6.NS.C.7 Negative numbers, variables, number line 6.NS.C.7 Ordering negative numbers 6.NS.C.7 Ordering small negative numbers 6.NS.C.7 Writing numerical inequalities RIT Range: 227-228 8.NS.A.1 Classify numbers 8.NS.A.1 Classify numbers: rational & irrational 8.NS.A.1 Converting multi-digit repeating decimals to fractions 8.NS.A.1 Converting repeating decimals to fractions 8.NS.A.1 Writing fractions as repeating decimals Approximating square roots (1) 8.NS.A.2 8.NS.A.2 Approximating square roots (2) 8.NS.A.2 Comparing irrational numbers Comparing irrational numbers with a calculator 8.NS.A.2 RIT Range: 229-242 HSN-RN.A.2 4th & 5th roots HSN-RN.A.2 Evaluate radical expressions challenge Fractional exponents HSN-RN.A.2 HSN-RN.A.2 Properties of exponents (rational exponents) HSN-RN.A.2 Properties of exponents challenge (rational exponents) HSN-RN.A.2 Rational exponents challenge

## The Real and Complex Number Systems

Extend and Use Properties Standards Alignment

RIT Range: 229-242

Simplify square roots HSN-RN.A.2

Simplify square-root expressions HSN-RN.A.2

Simplify square-roots (variables)

HSN-RN.A.2

<u>Unit-fraction exponents</u> HSN-RN.A.2

Rational vs. irrational expressions HSN-RN.B.3

| Coometrie Messurement and Polationships         | Standarda Alianmant |
|---|---------------------|
| Geometric Measurement and Relationships         | Standards Alignment |
| RIT Range: 189-200                              |                     |
| Categorize quadrilaterals                       | 3.G.A.1             |
| Identify quadrilaterals                         | 3.G.A.1   5.G.B.4   |
| <u>Understanding area</u>                       | 3.MD.C.5            |
| Create rectangles with a given area             | 3.MD.C.6            |
| Find area with partial unit squares             | 3.MD.C.6            |
| Area of rectangles                              | 3.MD.C.7            |
| Compare areas by multiplying                    | 3.MD.C.7            |
| Decompose figures to find area 1                | 3.MD.C.7            |
| Decompose figures to find area 2                | 3.MD.C.7            |
| Find a missing side length when given area      | 3.MD.C.7            |
| Measure to find area                            | 3.MD.C.7            |
| Transition from unit squares to area formula    | 3.MD.C.7            |
| Compare area and perimeter                      | 3.MD.D.8            |
| Find a missing side length when given perimeter | 3.MD.D.8            |
| Find perimeter by counting unit squares         | 3.MD.D.8            |
| Find perimeter when given side lengths          | 3.MD.D.8            |
| Measure to find perimeter                       | 3.MD.D.8            |
| Perimeter word problems                         | 3.MD.D.8            |
| RIT Range: 201-210                              |                     |
| Angle types                                     | 4.G.A.1             |
| Draw parallel and perpendicular lines           | 4.G.A.1             |
|   | 4.G.A.1             |
| Draw rays, lines, & line segments               |                     |
| Draw right, acute, and obtuse angles            | 4.G.A.1             |
| Identify parallel and perpendicular lines       | 4.G.A.1             |
| Identify rays, lines, & line segments           | 4.G.A.1             |

| Geometric Measurement and Relationships              | Standards Alignment            |
|--|--------------------------------|
| RIT Range: 201-210                                   |                                |
| Recognize angles                                     | 4.G.A.1                        |
| Classify shapes by line and angle types              | 4.G.A.2                        |
| Identify triangles by angles                         | 4.G.A.2                        |
| Identify triangles by side lengths                   | 4.G.A.2                        |
| Quadrilateral types (1)                              | 4.G.A.2   5.G.B.4              |
| Estimate mass (grams and kilograms)                  | 4.MD.A.1                       |
| Estimate volume (milliliters and liters)             | 4.MD.A.1                       |
| Estimating length (in, ft, yd, and mi)               | 4.MD.A.1                       |
| Estimating length (mm, cm, m, km)                    | 4.MD.A.1                       |
| Estimating mass (ounces and pounds)                  | 4.MD.A.1                       |
| Estimating time (seconds, minutes, and hours)        | 4.MD.A.1                       |
| Estimating volume (cups, pints, quarts, and gallons) | 4.MD.A.1                       |
| Time conversion word problems                        | 4.MD.A.2                       |
| <u>Time differences</u>                              | 4.MD.A.2                       |
| Area & perimeter of rectangles word problems         | 4.MD.A.3                       |
| Area of squares and rectangles                       | 4.MD.A.3                       |
| Angle basics   | 4.MD.C.5                       |
| Benchmark angles                                     | 4.MD.C.5                       |
| Name angles  | 4.MD.C.5                       |
| Angles in circles                                    | 4.MD.C.5   4.MD.C.6   5.MD.C.5 |
| <u>Draw angles</u>                                   | 4.MD.C.6                       |
| Measure angles                                       | 4.MD.C.6                       |
| Decompose angles                                     | 4.MD.C.7                       |
| RIT Range: 211-217                                   |                                |
| Identify quadrilaterals                              | 3.G.A.1   5.G.B.4              |

| Geometric Measurement and Relationships                | Standards Alignment            |
|--|--------------------------------|
| RIT Range: 211-217                                     |                                |
| Quadrilateral types (1)                                | 4.G.A.2   5.G.B.4              |
| Angles in circles                                      | 4.MD.C.5   4.MD.C.6   5.MD.C.5 |
| Distance between points in first quadrant              | 5.G.A.2                        |
| Graph points   | 5.G.A.2                        |
| Identify coordinates                                   | 5.G.A.2                        |
| Identify points  | 5.G.A.2                        |
| Shapes on the coordinate plane                         | 5.G.A.2                        |
| <u>Properties of shapes</u>                            | 5.G.B.3   5.G.B.4              |
| Quadrilateral types (2)                                | 5.G.B.4                        |
| Volume with unit cubes 1                               | 5.MD.C.4                       |
| Compare volumes with unit cubes                        | 5.MD.C.4   5.MD.C.5            |
| Decompose figures to find volume                       | 5.MD.C.5                       |
| Decompose figures to find volume (unit cubes)          | 5.MD.C.5                       |
| Volume 1   | 5.MD.C.5                       |
| Volume word problems                                   | 5.MD.C.5                       |
| RIT Range: 218-221                                     |                                |
| Area challenge   | 6.G.A.1                        |
| Area of composite shapes                               | 6.G.A.1                        |
| Area of parallelograms                                 | 6.G.A.1                        |
| Area of right triangles                                | 6.G.A.1                        |
| Area of trapezoids                                     | 6.G.A.1                        |
| Area of triangles                                      | 6.G.A.1                        |
| Find base and height on a triangle                     | 6.G.A.1                        |
| Find missing length when given area of a parallelogram | 6.G.A.1                        |
| Find missing length when given area of a triangle      | 6.G.A.1                        |

| Geometric Measurement and Relationships         | Standards Alignment   |
|---|-----------------------|
| RIT Range: 218-221                              |                       |
| Volume by multiplying area of base times height | 6.G.A.2               |
| Volume with cubes with fraction lengths         | 6.G.A.2               |
| Volume with fractions                           | 6.G.A.2               |
| Volume word problems: fractions & decimals      | 6.G.A.2               |
| Area and perimeter on the coordinate plane      | 6.G.A.3               |
| Drawing polygons with coordinates               | 6.G.A.3               |
| Quadrilateral problems on the coordinate plane  | 6.G.A.3               |
| Find surface area by adding areas of faces      | 6.G.A.4               |
| Nets of polyhedra                               | 6.G.A.4               |
| Surface area                                    | 6.G.A.4               |
| Surface area using nets                         | 6.G.A.4               |
| Surface area word problems                      | 6.G.A.4               |
| RIT Range: 222-226                              |                       |
| Construct scale drawings                        | 7.G.A.1               |
| Corresponding sides and points                  | 7.G.A.1               |
| Explore scale copies                            | 7.G.A.1               |
| Identify scale copies                           | 7.G.A.1               |
| Identify scale factor in scale drawings         | 7.G.A.1               |
| Interpret scale factor in scale drawings        | 7.G.A.1               |
| Relate scale drawings to area                   | 7.G.A.1               |
| Scale copies                                    | 7.G.A.1               |
| Scale drawings                                  | 7.G.A.1               |
| Constructing triangles                          | 7.G.A.2               |
| Triangle side length rules                      | 7.G.A.2               |
| Cross sections of 3D objects (basic)            | 7.G.A.3   HSG-GMD.B.4 |

| Geometric Measurement and Relationships                       | Standards Alignment                |
|---|------------------------------------|
| RIT Range: 222-226  |                                    |
| Area and circumference of circles challenge                   | 7.G.B.4                            |
| Area of a circle  | 7.G.B.4                            |
| Area of parts of circles                                      | 7.G.B.4                            |
| Circumference and rotations                                   | 7.G.B.4                            |
| Circumference of a circle                                     | 7.G.B.4                            |
| Circumference of parts of circles                             | 7.G.B.4                            |
| Radius and diameter   | 7.G.B.4                            |
| Complementary and supplementary angles (no visual)            | 7.G.B.5                            |
| Complementary and supplementary angles (visual)               | 7.G.B.5                            |
| Create equations to solve for missing angles                  | 7.G.B.5                            |
| Finding angle measures between intersecting lines             | 7.G.B.5                            |
| Finding missing angles  | 7.G.B.5                            |
| Identifying supplementary, complementary, and vertical angles | 7.G.B.5                            |
| Unknown angle problems (with algebra)                         | 7.G.B.5                            |
| Vertical angles   | 7.G.B.5                            |
| Shaded areas  | 7.G.B.6                            |
| Volume and surface area word problems                         | 7.G.B.6                            |
| RIT Range: 227-228  |                                    |
| Volume of cones   | 8.G.C.9                            |
| Volume of cylinders   | 8.G.C.9                            |
| Volume of cylinders, spheres, and cones word problems         | 8.G.C.9                            |
| Volume of spheres   | 8.G.C.9                            |
| Volume and surface area of cylinders                          | 8.G.C.9   HSG-GMD.A.3              |
| Solid geometry word problems                                  | 8.G.C.9   HSG-GMD.A.3   HSG-MG.A.1 |
|   |                                    |

Points inside/outside/on a circle

| Geometry Geometric Measurement and Relationships | Standards Alignment                |
|--|------------------------------------|
| RIT Range: 229-252                               |                                    |
| Cross sections of 3D objects (basic)             | 7.G.A.3   HSG-GMD.B.4              |
| Volume and surface area of cylinders             | 8.G.C.9   HSG-GMD.A.3              |
| Solid geometry word problems                     | 8.G.C.9   HSG-GMD.A.3   HSG-MG.A.1 |
| Inscribed angles                                 | HSG-C.A.2                          |
| Inscribed shapes                                 | HSG-C.A.2                          |
| Tangents of circles problems                     | HSG-C.A.2                          |
| Inscribed quadrilaterals                         | HSG-C.A.3                          |
| Arc length (1)                                   | HSG-C.B.5                          |
| Arc length (2)                                   | HSG-C.B.5                          |
| Arc measure                                      | HSG-C.B.5                          |
| Arc measure with equations                       | HSG-C.B.5                          |
| Area of a sector                                 | HSG-C.B.5                          |
| Radians & arc length                             | HSG-C.B.5                          |
| Radians & degrees                                | HSG-C.B.5                          |
| Density word problems                            | HSG-GMD.A.3   HSG-MG.A.2           |
| Cross sections of 3D objects                     | HSG-GMD.B.4                        |
| Rotate 2D shapes in 3D                           | HSG-GMD.B.4                        |
| Features of a circle from its expanded equation  | HSG-GPE.A.1                        |
| Features of a circle from its graph              | HSG-GPE.A.1                        |
| Features of a circle from its standard equation  | HSG-GPE.A.1                        |
| Graph a circle from its expanded equation        | HSG-GPE.A.1                        |
| Graph a circle from its features                 | HSG-GPE.A.1                        |
| Graph a circle from its standard equation        | HSG-GPE.A.1                        |
| Write standard equation of a circle              | HSG-GPE.A.1                        |
| Equation of a parabola from focus & directrix    | HSG-GPE.A.2                        |

HSG-GPE.B.4

HSG-GPE.B.7

## Geometry

Geometric Measurement and Relationships Standards Alignment

RIT Range: 229-252

Coordinate plane word problems: polygons

Parallel & perpendicular lines from equation

Parallel & perpendicular lines from graph

HSG-GPE.B.5

Write equations of parallel & perpendicular lines

Divide line segments

HSG-GPE.B.6

Midpoint formula

HSG-GPE.B.6

HSG-GPE.B.6

HSG-GPE.B.7

| Congruence, Similarity, Right Triangles, & Trig | Standards Alignment                               |
|---|---|
| RIT Range: 201-210                              |   |
| Draw lines of symmetry and symmetrical figures  | 4.G.A.3   |
| Identify lines of symmetry                      | 4.G.A.3   |
| Identify symmetrical figures                    | 4.G.A.3   |
| RIT Range: 227-228                              |   |
| Rotate points (basic)                           | 8.G.A.1   |
| Find measures using rigid transformations       | 8.G.A.1   8.G.A.2   HSG-CO.A.2   HSG-<br>CO.B.6   |
| Rigid transformations: preserved properties     | 8.G.A.1   8.G.A.2   HSG-CO.A.2   HSG-CO.B.6       |
| Mapping shapes                                  | 8.G.A.1   8.G.A.2   HSG-CO.A.5                    |
| Determine rotations (basic)                     | 8.G.A.1   8.G.A.3                                 |
| <u>Determine rotations</u>                      | 8.G.A.1   8.G.A.3   HSG-CO.A.2   HSG-CO.A.5       |
| Determine translations                          | 8.G.A.1   8.G.A.3   HSG-CO.A.2   HSG-CO.A.5       |
| Determine reflections                           | 8.G.A.1   8.G.A.3   HSG-CO.A.5                    |
| Reflect points                                  | 8.G.A.1   8.G.A.3   HSG-CO.A.5                    |
| Reflect shapes                                  | 8.G.A.1   8.G.A.3   HSG-CO.A.5                    |
| Translate points (1)                            | 8.G.A.1   8.G.A.3   HSG-CO.A.5                    |
| Translate points (2)                            | 8.G.A.1   8.G.A.3   HSG-CO.A.5                    |
| <u>Translate shapes</u>                         | 8.G.A.1   8.G.A.3   HSG-CO.A.5                    |
| Identify transformations                        | 8.G.A.1   HSG-CO.A.4   HSG-CO.A.5                 |
| Congruence & transformations                    | 8.G.A.2   HSG-CO.B.6                              |
| <u>Dilations and properties</u>                 | 8.G.A.3   8.G.A.4                                 |
| Dilate triangles                                | 8.G.A.3   8.G.A.4   HSG-SRT.A.1   HSG-SRT.A.2     |
| Dilations: scale factor                         | 8.G.A.3   8.G.A.4   HSG-SRT.A.1   HSG-<br>SRT.A.2 |
| Dilate points                                   | 8.G.A.3   HSG-SRT.A.1                             |
| Similarity & transformations                    | 8.G.A.4   HSG-SRT.A.2                             |

| Congruence, Similarity, Right Triangles, & Trig                 | Standards Alignment                         |
|---|---|
| RIT Range: 227-228  |   |
| Angle relationships with parallel lines                         | 8.G.A.5                                     |
| Equation practice with angles                                   | 8.G.A.5                                     |
| Find angles in triangles  | 8.G.A.5                                     |
| Finding angle measures between intersecting lines               | 8.G.A.5                                     |
| Finding angle measures using triangles                          | 8.G.A.5                                     |
| Find angles in isosceles triangles                              | 8.G.A.5   HSG-SRT.B.5                       |
| Use area of squares to visualize Pythagorean theorem            | 8.G.B.6                                     |
| Pythagorean theorem challenge                                   | 8.G.B.7                                     |
| Pythagorean theorem in 3D                                       | 8.G.B.7                                     |
| Pythagorean theorem word problems                               | 8.G.B.7                                     |
| Right triangle side lengths                                     | 8.G.B.7                                     |
| Use Pythagorean theorem to find area                            | 8.G.B.7                                     |
| Use Pythagorean theorem to find isosceles triangle side lengths | 8.G.B.7 <u>Use</u>                          |
| Pythagorean theorem to find perimeter                           | 8.G.B.7                                     |
| Use Pythagorean theorem to find right triangle side lengths     | 8.G.B.7                                     |
| Distance between two points                                     | 8.G.B.8                                     |
| RIT Range: 229-252  |   |
| Find measures using rigid transformations                       | 8.G.A.1   8.G.A.2   HSG-CO.A.2   HSG-CO.B.6 |
| Rigid transformations: preserved properties                     | 8.G.A.1   8.G.A.2   HSG-CO.A.2   HSG-CO.B.6 |
| Mapping shapes  | 8.G.A.1   8.G.A.2   HSG-CO.A.5              |
| <u>Determine rotations</u>                                      | 8.G.A.1   8.G.A.3   HSG-CO.A.2   HSG-CO.A.5 |
| Determine translations  | 8.G.A.1   8.G.A.3   HSG-CO.A.2   HSG-CO.A.5 |
| Determine reflections   | 8.G.A.1   8.G.A.3   HSG-CO.A.5              |
| Reflect points  | 8.G.A.1   8.G.A.3   HSG-CO.A.5              |
| Reflect shapes  | 8.G.A.1   8.G.A.3   HSG-CO.A.5              |

| Congruence, Similarity, F | Right Triangles, & Trig | Standards Alignment |
|---------------------------|-------------------------|---------------------|
|---------------------------|-------------------------|---------------------|

| Translate points (1) | 8.G.A.1 | 8.G.A.3 | HSG-CO.A.5 |
|----------------------|---------|---------|------------|
|                      |         |         |            |

8.G.A.1 | 8.G.A.3 | HSG-CO.A.5 Translate points (2)

8.G.A.1 | 8.G.A.3 | HSG-CO.A.5 **Translate shapes** 

**Identify transformations** 8.G.A.1 | HSG-CO.A.4 | HSG-CO.A.5

8.G.A.2 | HSG-CO.B.6 Congruence & transformations

8.G.A.3 | 8.G.A.4 | HSG-SRT.A.1 | HSG-SRT.A.2 Dilate triangles

Dilations: scale factor 8.G.A.3 | 8.G.A.4 | HSG-SRT.A.1 | HSG-

SRT.A.2

8.G.A.3 | HSG-SRT.A.1 Dilate points

8.G.A.4 | HSG-SRT.A.2 Similarity & transformations

8.G.A.5 | HSG-SRT.B.5 Find angles in isosceles triangles

HSG-CO.A.1 Geometric definitions

HSG-CO.A.2 Sequences of transformations

HSG-CO.A.2 | HSG-CO.A.4 Defining transformations

HSG-CO.A.2 | HSG-CO.A.5 Determine reflections (advanced)

HSG-CO.A.3 Symmetry of 2D shapes

HSG-CO.A.5 Advanced reflections

HSG-CO.A.5 Rotate shapes

HSG-CO.A.5 Rotate shapes: center  $\neq$  (0,0)

HSG-CO.C.9 **Proofs with transformations** 

Determine congruent triangles HSG-SRT.B.5

HSG-SRT.B.5 Determine similar triangles: AA

Determine similar triangles: SSS HSG-SRT.B.5

HSG-SRT.B.5 Find angles in congruent triangles

HSG-SRT.B.5 Solve similar triangles (advanced)

HSG-SRT.B.5 Solve similar triangles (basic)

Congruence, Similarity, Right Triangles, & Trig Standards Alignment

RIT Range: 229-252

Solve triangles: angle bisector theorem HSG-SRT.B.5

Use similar & congruent triangles HSG-SRT.B.5

Reciprocal trig ratios HSG-SRT.C.6

Solve for a side in right triangles

HSG-SRT.C.6 | HSG-SRT.C.8

<u>Trigonometric ratios in right triangles</u>

HSG-SRT.C.6 | HSG-SRT.C.8

Right triangle word problems HSG-SRT.C.8

Solve for an angle in right triangles

HSG-SRT.C.8

Special right triangles HSG-SRT.C.8

| Interpreting Categorical and Quantitative Data       | Standards Alignment            |
|--|--------------------------------|
| RIT Range: 189-200                                   |                                |
| Create bar graphs                                    | 3.MD.B.3                       |
| Create picture graphs (picture more than 1)          | 3.MD.B.3                       |
| Read bar graphs and solve 1-step problems            | 3.MD.B.3                       |
| Read bar graphs and solve 2 step problems            | 3.MD.B.3                       |
| Read picture graphs                                  | 3.MD.B.3                       |
| Read picture graphs (multi-step problems)            | 3.MD.B.3                       |
| Graph data on line plots                             | 3.MD.B.4                       |
| Read line plots (data with fractions)                | 3.MD.B.4                       |
| RIT Range: 201-210                                   |                                |
| Interpret dot plots with fractions 1                 | 4.MD.B.4                       |
| RIT Range: 211-217                                   |                                |
| Interpret dot plots with fraction operations         | 5.MD.B.2                       |
| RIT Range: 218-221                                   |                                |
| Statistical questions                                | 6.SP.A.1                       |
| Clusters, gaps, peaks, & outliers                    | 6.SP.A.2                       |
| Shape of distributions                               | 6.SP.A.2                       |
| Reading box plots                                    | 6.SP.A.2   6.SP.B.4   6.SP.B.5 |
| Estimate center using dot plots                      | 6.SP.A.3   6.SP.B.4   6.SP.B.5 |
| Reading dot plots & frequency tables                 | 6.SP.A.3   6.SP.B.4   6.SP.B.5 |
| Data set warm-up                                     | 6.SP.A.3   6.SP.B.5            |
| Effects of shifting, adding, & removing a data point | 6.SP.A.3   6.SP.B.5            |
| Create histograms                                    | 6.SP.B.4                       |
| Creating box plots                                   | 6.SP.B.4                       |
| Creating dot plots                                   | 6.SP.B.4                       |
| Creating frequency tables                            | 6.SP.B.4                       |

| Interpreting Categorical and Quantitative Data                                | Standards Alignment |
|---|---------------------|
| RIT Range: 218-221  |                     |
| Calculating the mean: data displays   | 6.SP.B.4   6.SP.B.5 |
| Calculating the median: data displays   | 6.SP.B.4   6.SP.B.5 |
| Comparing data displays   | 6.SP.B.4   6.SP.B.5 |
| Estimate center using histograms  | 6.SP.B.4   6.SP.B.5 |
| Read histograms   | 6.SP.B.4   6.SP.B.5 |
| Calculating the mean  | 6.SP.B.5            |
| Calculating the median  | 6.SP.B.5            |
| Interpreting quartiles  | 6.SP.B.5            |
| Interquartile range (IQR)   | 6.SP.B.5            |
| Median & range puzzlers   | 6.SP.B.5            |
| Missing value given the mean  | 6.SP.B.5            |
| RIT Range: 222-226  |                     |
| Comparing distributions   | 7.SP.B.3   7.SP.B.4 |
| RIT Range: 227-228  |                     |
| Constructing scatter plots  | 8.SP.A.1            |
| Describing trends in scatter plots  | 8.SP.A.1            |
| Making appropriate scatter plots  | 8.SP.A.1            |
| Positive and negative linear associations from scatter plots                  | 8.SP.A.1            |
| Eyeballing the line of best fit   | 8.SP.A.2            |
| Estimating equations of lines of best fit, and using them to make predictions | 8.SP.A.3            |
|   |                     |
| Estimating slope of line of best fit  | 8.SP.A.3            |
| Interpreting slope and y-intercept for linear models                          | 8.SP.A.3            |
| Create two-way frequency tables   | 8.SP.A.4            |
| Create two-way relative frequency tables                                      | 8.SP.A.4            |
| Interpreting two-way tables   | 8.SP.A.4            |

Interpreting Categorical and Quantitative Data

Standards Alignment

RIT Range: 227-228

Read two-way frequency tables 8.SP.A.4

Reading two-way relative frequency tables 8.SP.A.4

RIT Range: 229-252

Comparing data distributions

HSS-ID.A.1 | HSS-ID.A.2 | HSS-ID.A.3

Standard deviation of a population HSS-ID.A.2

Empirical rule HSS-ID.A.4

Normal distribution: Area above or below a point HSS-ID.A.4

Normal distribution: Area between two points

HSS-ID.A.4

Z-scores 1 HSS-ID.A.4

Trends in categorical data HSS-ID.B.5

Fitting quadratic and exponential functions to scatter plots

HSS-ID.B.6

Correlation coefficient intuition HSS-ID.C.8

Types of statistical studies HSS-ID.C.9

Using Sampling and Probability to Make Decisions

Standards Alignment

RIT Range: 222-226

Making inferences from random samples 7.SP.A.1 | 7.SP.A.2

Valid claims 7.SP.A.1 | 7.SP.A.2

Probability models 7.SP.C.5 | 7.SP.C.6 | 7.SP.C.7

Experimental probability 7.SP.C.6

Making predictions with probability 7.SP.C.6 | 7.SP.C.7

Simple probability 7.SP.C.7

Probabilities of compound events 7.SP.C.8

Sample spaces for compound events 7.SP.C.8

The counting principle 7.SP.C.8

RIT Range: 229-252

Basic set notation HSS-CP.A.1

Subsets of sample spaces HSS-CP.A.1

Dependent and independent events

HSS-CP.A.2 | HSS-CP.A.3

Trends in categorical data HSS-CP.A.4 | HSS-CP.A.5 | HSS-CP.B.6

Dependent probability HSS-CP.B.6

Adding probabilities HSS-CP.B.7

Simple hypothesis testing HSS-IC.A.2

Types of statistical studies HSS-IC.B.3 | HSS-IC.B.6

Hypothesis testing in experiments

HSS-IC.B.5

NWEA® is a not-for-profit organization that supports students and educators worldwide by providing assessment solutions, insightful reports, professional learning offerings, and research services. Visit NWEA.org to find out how NWEA can partner with you to help all kids learn.

© NWEA 2020.

© Copyright 2010 National Governors Association Center for Best Practices and Council of Chief State School Officers.

MAP is a registered trademark, and NWEA, MAP Growth, and Measuring What Matters are trademarks, of NWEA in the US and in other countries.

The names of other companies and their products mentioned are the trademarks of their respective owners.

September 2020