

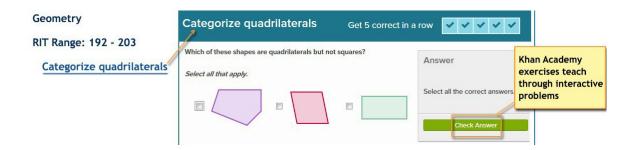
## MAP Growth Mathematics to Khan Academy

#### 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 2015 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.

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# 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. 38 |
| Geometry   |        |
| Geometric Measurement and Relationships          | Pg. 43 |
| Congruence, Similarity, Right Triangles, & Trig  | Pg. 51 |
| Statistics and Probability                       |        |
| Interpreting Categorical and Quantitative Data   | Pg. 55 |
| Using Sampling and Probability to Make Decisions | Pg. 58 |

**Expressions and Equations** Standards Alignment RIT Range: <160 K.OA.A.3 Making small numbers in different ways RIT Range: 161-178 Relate addition and subtraction 1.OA.B.4 1.OA.D.7 Equal sign 1.OA.D.8 Find missing number (add and subtract within 20) RIT Range: 179-191 2.MD.B.6 Add and subtract on the number line word problems RIT Range: 192-202 3.OA.A.3 | 3.OA.B.6 Relate division to multiplication word problems Find missing divisors and dividends (1-digit division) 3.OA.A.4 3.OA.A.4 Find missing factors (1-digit multiplication) 3.OA.A.4 Letters and symbols in multiplication and division equations 3.OA.B.5 Associative property of multiplication 3.OA.B.5 Commutative property of multiplication 3.OA.B.5 Distributive property of multiplication RIT Range: 203-212 4.OA.A.1 Compare with multiplication 4.OA.A.3 Multi-step word problems with whole numbers 4.OA.A.3 Represent multi-step word problems using equations RIT Range: 213-219 5.NBT.A.2 Powers of ten 5.OA.A.1 Evaluate expressions with parentheses 5.OA.A.2 Create expressions with parentheses 5.OA.A.2 Translate expressions with parentheses

**Expressions and Equations** Standards Alignment RIT Range: 220-223 6.EE.A.1 **Exponents** 6.EE.A.1 Exponents (basic) 6.EE.A.1 Powers of fractions Variable expressions with exponents 6.EE.A.1 6.EE.A.1 | 6.EE.A.2 Order of operations challenge 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 Evaluating expressions with variables word problems 6.EE.A.2 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.3 Combining like terms 6.EE.A.3 Combining like terms with distribution 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 6.EE.B.5 Testing solutions to inequalities 6.EE.B.5 Testing solutions to inequalities (basic) 6.EE.B.5 | 6.EE.B.7 Identify and solve equations from visual models 6.EE.B.5 | 6.EE.B.7 Identify equations from visual models

| Expressions and Equations  | Standards Alignment |
|--|---------------------|
| RIT Range: 220-223   |                     |
| 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            |
| One-step multiplication & division equations                       | 6.EE.B.7            |
| One-step multiplication & division equations: fractions & decimals | 6.EE.B.7            |
| <u>Inequalities word problems</u>                                  | 6.EE.B.7   6.EE.B.8 |
| Inequality from graph  | 6.EE.B.8            |
| Plotting inequalities  | 6.EE.B.8            |
| 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                             | 6.EE.C.9            |
| RIT Range: 224-227   |                     |
| Combining like terms with negative coefficients                    | 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            |
| Equivalent expressions: negative numbers & distribution            | 7.EE.A.1            |
| The distributive property with variables                           | 7.EE.A.1            |
| Interpreting linear expressions                                    | 7.EE.A.2            |
| Rational number word problems                                      | 7.EE.B.3            |

| Expressions and Equations                             | Standards Alignment    |
|---|------------------------|
| RIT Range: 224-227                                    |                        |
| Find the mistake: two-step equations                  | 7.EE.B.4               |
| One-step inequalities                                 | 7.EE.B.4               |
| 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               |
| Two-step equations                                    | 7.EE.B.4   HSA-REI.B.3 |
| RIT Range: 228-231                                    |                        |
| <u>Divide powers</u>                                  | 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               |
| 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    |

## Operations and Algebraic Thinking Expressions and Equations

| Expressions and Equations                                    | Standards Alignment                                   |
|--|---|
| RIT Range: 228-231   |   |
| 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  |
| Equation practice with angle addition                        | 8.EE.C.7  |
| Equation practice with midpoints                             | 8.EE.C.7  |
| Equation practice with segment addition                      | 8.EE.C.7  |
| Equation practice with vertical angles                       | 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  |
| Equations with parentheses                                   | 8.EE.C.7   HSA-REI.B.3                                |
| Equations with parentheses: decimals & fractions             | 8.EE.C.7   HSA-REI.B.3                                |
| Equations with variables on both sides                       | 8.EE.C.7   HSA-REI.B.3                                |
| Equations with variables on both sides: decimals & fractions | 8.EE.C.7   HSA-REI.B.3                                |
| Age word problems  | 8.EE.C.8   HSA-CED.A.2   HSA-CED.A.3<br>  HSA-REI.C.6 |
| Systems of equations word problems                           | 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                  |

Expressions and Equations Standards Alignment

RIT Range: 228-231

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

RIT Range: 232-245

Two-step equations 7.EE.B.4 | HSA-REI.B.3

Equations with parentheses 8.EE.C.7 | HSA-REI.B.3

Equations with parentheses: decimals & fractions 8.EE.C.7 | HSA-REI.B.3

Equations with variables on both sides 8.EE.C.7 | HSA-REI.B.3

Equations with variables on both sides: decimals & fractions 8.EE.C.7 | HSA-REI.B.3

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

| HSA-REI.C.6

Systems of equations word problems 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

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

Expressions and Equations Standards Alignment

RIT Range: 232-245

Multiply monomials intro HSA-APR.A.1

Special products of binomials

HSA-APR.A.1

Special products of binomials intro

HSA-APR.A.1

Subtract polynomials (intro)

HSA-APR.A.1

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

<u>Divide polynomials with remainders</u>
HSA-APR.D.6

Divide polynomials with remainders: binomial divisors

HSA-APR.D.6

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

Expressions and Equations Standards Alignment

RIT Range: 232-245

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

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

**Expressions and Equations** Standards Alignment RIT Range: 232-245 HSA-SSE.B.3 Factor quadratics by grouping HSA-SSE.B.3 Factoring quadratics intro HSA-SSE.B.3 Features of quadratic functions Features of quadratic functions: strategy HSA-SSE.B.3 HSA-SSE.B.3 Interpret change in exponential models HSA-SSE.B.3 Interpret time in exponential models HSA-SSE.B.3 Rewrite exponential expressions HSA-SSE.B.3 Slope from equation RIT Range: 246-255 HSA-APR.A.1 Add & subtract polynomials: two variables

Multiply binomials by polynomials

Multiply monomials by polynomials

Multiply monomials by polynomials challenge

HSA-APR.A.1

Multiply monomials by polynomials: area model

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

<u>Simplify rational expressions (advanced)</u>
HSA-APR.D.6

<u>Simplify rational expressions: common binomial factors</u>
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

Expressions and Equations Standards Alignment

RIT Range: 246-255

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

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

| Operations and Algebraic Thinking Use Functions to Model Relationships | Standards Alignment                      |
|--|--|
| RIT Range: 192-202   |  |
| Math patterns 1  | 3.OA.D.9                                 |
| Patterns with even and odd   | 3.OA.D.9                                 |
| RIT Range: 203-212   |  |
| Math patterns 2  | 4.OA.C.5                                 |
| RIT Range: 213-219   |  |
| Coordinate plane word problems (quadrant 1 - challenging)              | 5.G.A.2                                  |
| Coordinate plane word problems (quadrant 1)                            | 5.G.A.2                                  |
| Graph points   | 5.G.A.2                                  |
| <u>Identify coordinates</u>  | 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: 228-231   |  |
| Complete solutions to 2-variable equations                             | 8.F.A.1                                  |
| Linear equations in any form   | 8.F.A.1   8.F.A.3   8.F.B.4   HSF-LE.A.2 |
| 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           |
| Function rules from equations  | 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: 228-231

Function inputs & outputs: equation 8.F.A.1 | HSF-IF.A.1 | HSF-IF.A.2

Domain and range from graph 8.F.A.1 | HSF-IF.A.1 | HSF-IF.B.5

Evaluate functions 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

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

Compare linear functions 8.F.A.2 | HSF-IF.C.9

Linear & nonlinear functions 8.F.A.3

Intercepts from an equation 8.F.A.3 | HSF-IF.C.7

Ordered pair solutions to linear equations 8.F.B.4

Slope from two points 8.F.B.4 | HSF-IF.C.7

Slope from equation 8.F.B.4 | HSF-IF.C.7 | HSF-IF.C.8

Slope-intercept intro 8.F.B.4 | HSF-IF.C.7 | HSF-LE.A.2

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

Interpreting graphs of functions 8.F.B.5

Increasing and decreasing intervals 8.F.B.5 | HSF-IF.C.7

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

RIT Range: 232-245

<u>Linear equations in any form</u>

8.F.A.1 | 8.F.A.3 | 8.F.B.4 | HSF-LE.A.2

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

Use Functions to Model Relationships Standards Alignment

RIT Range: 232-245

8.F.A.1 | HSF-IF.A.1 Function rules from equations 8.F.A.1 | HSF-IF.A.1 Recognize functions from graphs 8.F.A.1 | HSF-IF.A.1 Recognize functions from tables **Evaluate function expressions** 8.F.A.1 | HSF-IF.A.1 | HSF-IF.A.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.B.5 Domain and range from graph 8.F.A.1 | HSF-IF.A.2 **Evaluate functions** 8.F.A.1 | HSF-IF.A.2 Function notation word problems Determine the domain of functions 8.F.A.1 | HSF-IF.B.5 8.F.A.1 | HSF-IF.B.5 Function domain word problems 8.F.A.1 | HSF-IF.C.7 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.2 | HSF-IF.C.9 Compare linear functions 8.F.A.3 | HSF-IF.C.7 Intercepts from an equation 8.F.B.4 | HSF-IF.C.7 Slope from two points Slope from equation 8.F.B.4 | HSF-IF.C.7 | HSF-IF.C.8 8.F.B.4 | HSF-IF.C.7 | HSF-LE.A.2 Slope-intercept intro Slope from graph 8.F.B.4 | HSF-LE.A.2 8.F.B.5 | HSF-IF.C.7 Increasing and decreasing intervals HSF-BF.A.1 | HSF-BF.A.2 | HSF-LE.A.1 | Sequences word problems HSF-LE.A.2 HSF-BF.A.1 | HSF-IF.B.4 | HSF-LE.A.2 | Linear models word problems HSF-LE.B.5 HSF-BF.A.1 | HSF-LE.A.2 Construct exponential models HSF-BF.A.1 | HSF-LE.A.2 Writing linear functions word problems

Converting recursive & explicit forms of arithmetic sequences

HSF-BF.A.2

Use Functions to Model Relationships Standards Alignment

RIT Range: 232-245

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

Evaluate functions from their graph

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

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

<u>Linear equations word problems: tables</u>

HSF-IF.B.4

Quadratic word problems (standard form)

HSF-IF.B.4 | HSF-IF.C.8

Comparing linear functions word problem HSF-IF.B.4 | HSF-IF.C.9 | HSF-LE.B.5

Graph parabolas in all forms

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

Positive and negative intervals

HSF-IF.C.7

Horizontal & vertical lines HSF-IF.C.7 | HSF-LE.A.2

Completing the square HSF-IF.C.8

Use Functions to Model Relationships Standards Alignment RIT Range: 232-245 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 Difference of squares HSF-IF.C.8 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 Features of quadratic functions HSF-IF.C.8 HSF-IF.C.8 Features of quadratic functions: strategy HSF-IF.C.8 Perfect squares HSF-IF.C.8 Quadratics by factoring HSF-IF.C.8 Quadratics by factoring (intro) HSF-IF.C.8 Rewrite exponential expressions HSF-IF.C.8 Solve equations using structure Compare features of functions HSF-IF.C.8 | HSF-IF.C.9 HSF-IF.C.8 | HSF-LE.B.5 Interpret change in exponential models Interpret change in exponential models: changing units HSF-IF.C.8 | HSF-LE.B.5 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.9 Compare quadratic functions HSF-LE.A.1 Exponential vs. linear. models HSF-LE.A.1 Linear vs. exponential growth: from data HSF-LE.A.2 Exponential functions from tables & graphs HSF-LE.A.2 Point-slope form HSF-LE.A.3 Exponential vs. linear growth over time

Use Functions to Model Relationships Standards Alignment

RIT Range: 232-245

Linear equations word problems

HSF-LE.B.5

RIT Range: 246-255

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

Graph interpretation word problems

HSF-IF.B.4

Periodicity of algebraic models

HSF-IF.B.4

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.B.6

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

Use Functions to Model Relationships Standards Alignment RIT Range: 246-255 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 Period of sinusoidal functions from equation HSF-IF.C.7 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 HSF-IF.C.8 Equivalent forms of exponential expressions HSF-IF.C.8 Factor polynomials: common factor HSF-IF.C.8 Factor polynomials: quadratic methods HSF-IF.C.8 Factor polynomials: quadratic methods (challenge) HSF-IF.C.8 Factor polynomials: special product forms HSF-IF.C.8 Find zeros of polynomials HSF-LE.A.4 Exponential model word problems HSF-LE.A.4 Solve exponential equations using logarithms: base-10 and base-e HSF-LE.A.4 Solve exponential equations using logarithms: base-2 and other bases HSF-TF.B.5 Modeling with sinusoidal functions: phase shift HSF-TF.C.8 Use the Pythagorean identity

Use Functions to Model Relationships Standards Alignment

RIT Range: >256

Model with composite functions

HSF-BF.A.1

Evaluate logarithms: change of base rule HSF-LE.A.4

| Ratios and Proportional Relationships       | Standards Alignment |
|---|---------------------|
| RIT Range: 203-212                          |                     |
| 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: 213-219                          |                     |
| 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: 220-223                          |                     |
| Basic ratios                                | 6.RP.A.1            |
| 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 |
| <u>Unit rates</u>                           | 6.RP.A.2            |
| Comparing rates                             | 6.RP.A.2   6.RP.A.3 |
| Converting decimals to percents             | 6.RP.A.3            |
| Converting percents & fractions             | 6.RP.A.3            |
| Converting percents to decimals             | 6.RP.A.3            |

| Ratios and Proportional Relationships             | Standards Alignment |
|---|---------------------|
| RIT Range: 220-223                                |                     |
| Equivalent ratio word problems                    | 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            |
| Rate problems                                     | 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            |
| <u>Understand equivalent ratios</u>               | 6.RP.A.3            |
| Proportion word problems                          | 6.RP.A.3   7.RP.A.3 |
| RIT Range: 224-227                                |                     |
| Proportion word problems                          | 6.RP.A.3   7.RP.A.3 |
| Rates with fractions                              | 7.RP.A.1            |
| Compare constants of proportionality              | 7.RP.A.2            |
| Constant of proportionality from equations        | 7.RP.A.2            |
| Constant of proportionality from graphs           | 7.RP.A.2            |
| Constant of proportionality from tables           | 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            |
| Proportional relationships: graphs                | 7.RP.A.2            |
| Solving proportions                               | 7.RP.A.2            |

Ratios and Proportional Relationships

Standards Alignment

RIT Range: 224-227

Writing proportional equations

7.RP.A.2

Writing proportions

7.RP.A.2

Discount, tax, markup, and commission word problems

Figure 1. Percent problems

7.RP.A.3

Percent problems

7.RP.A.3

7.RP.A.3

| Perform Operations                       | Standards Alignment   |
|--|-----------------------|
| RIT Range: <160                          |                       |
| Count tens                               | K.CC.A.1              |
| Numbers to 100                           | K.CC.A.1              |
| Add within 10                            | K.OA.A.1              |
| Subtract within 10                       | K.OA.A.1              |
| Addition word problems within 10         | K.OA.A.2              |
| Subtraction word problems within 10      | K.OA.A.2              |
| RIT Range: 161-178                       |                       |
| Numbers to 120                           | 1.NBT.A.1             |
| Add 1s or 10s (no regrouping)            | 1.NBT.C.4             |
| Add 2-digit numbers (no regrouping)      | 1.NBT.C.4             |
| Break apart 2-digit addition problems    | 1.NBT.C.4             |
| Regroup when adding 1-digit numbers      | 1.NBT.C.4             |
| Add 1 or 10                              | 1.NBT.C.4   1.NBT.C.5 |
| Addition and subtraction word problems 1 | 1.OA.A.1              |
| Addition and subtraction word problems 2 | 1.OA.A.1              |
| Word problems with "more" and "fewer"    | 1.OA.A.1              |
| Word problems with "more" and "fewer" 1  | 1.OA.A.1              |
| Word problems with "more" and "fewer" 2  | 1.OA.A.1              |
| Add 3 numbers                            | 1.OA.A.2              |
| Add within 20                            | 1.OA.C.6              |
| RIT Range: 179-191                       |                       |
| Count money (U.S.)                       | 2.MD.C.8   2.NBT.A.2  |
| Skip-count by 10s                        | 2.NBT.A.2             |
| Skip-count by 5s                         | 2.NBT.A.2             |
| Skip-counting by 100s                    | 2.NBT.A.2             |

| The Real and Complex Ramber Cyclems                     |                       |
|---|-----------------------|
| Perform Operations                                      | Standards Alignment   |
| RIT Range: 179-191                                      |                       |
| Subtract 1-digit numbers with regrouping                | 2.NBT.A.4             |
| Add 2-digit numbers by making tens                      | 2.NBT.B.5             |
| Add 2-digit numbers by making tens 2                    | 2.NBT.B.5             |
| Add within 100  | 2.NBT.B.5             |
| Subtract 1 or 10  | 2.NBT.B.5             |
| Subtract 2-digit numbers (no regrouping)                | 2.NBT.B.5             |
| Subtract within 100                                     | 2.NBT.B.5             |
| Subtract within 20                                      | 2.NBT.B.5             |
| Subtracting 1s or 10s (no regrouping)                   | 2.NBT.B.5             |
| Add 10s and 100s (no regrouping)                        | 2.NBT.B.7             |
| Add 2- and 3-digit numbers (no regrouping)              | 2.NBT.B.7             |
| Add and subtract on a number line                       | 2.NBT.B.7             |
| Add and subtract using a number line                    | 2.NBT.B.7             |
| Select strategies for adding within 100                 | 2.NBT.B.7             |
| Subtract 10s and 100s (no regrouping)                   | 2.NBT.B.7             |
| Subtract 2- and 3-digit numbers (no regrouping)         | 2.NBT.B.7             |
| Add using groups of 10 and 100                          | 2.NBT.B.7   3.NBT.A.2 |
| Break apart 3-digit addition problems                   | 2.NBT.B.7   3.NBT.A.2 |
| Estimate to add and subtract multi-digit whole numbers  | 2.NBT.B.7   3.NBT.A.2 |
| Add and subtract within 100 word problems 1             | 2.OA.A.1              |
| Add and subtract within 100 word problems 2             | 2.OA.A.1              |
| Add and subtract within 100 word problems 3             | 2.OA.A.1              |
| Challenging add and subtract word problems (within 100) | 2.OA.A.1              |
| Find the missing number (add and subtract within 100)   | 2.OA.A.1              |
| Length word problems                                    | 2.OA.A.1              |
| Repeated addition                                       | 2.OA.C.4              |

**Perform Operations** Standards Alignment RIT Range: 192-202 2.NBT.B.7 | 3.NBT.A.2 Add using groups of 10 and 100 2.NBT.B.7 | 3.NBT.A.2 Break apart 3-digit addition problems 2.NBT.B.7 | 3.NBT.A.2 Estimate to add and subtract multi-digit whole numbers Round to nearest 10 or 100 3.NBT.A.1 3.NBT.A.1 Round to nearest 10 or 100 on the number line 3.NBT.A.1 Rounding challenge 3.NBT.A.2 Add within 1000 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 Divide with visuals 3.OA.A.2 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

| Perform Operations  | Standards Alignment |
|---|---------------------|
| RIT Range: 192-202  |                     |
| Divide by 7   | 3.OA.C.7            |
| Divide by 8   | 3.OA.C.7            |
| Divide by 9   | 3.OA.C.7            |
| 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            |
| Whole numbers on the number line                            | 3.OA.C.7            |
| 2-step word problems  | 3.OA.D.8            |
| RIT Range: 203-212  |                     |
| Telling time word problems                                  | 4.MD.A.2            |
| Round whole numbers   | 4.NBT.A.3           |
| Round whole numbers challenge                               | 4.NBT.A.3           |
| Round whole numbers word problems                           | 4.NBT.A.3           |
| 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           |

| Perform Operations S   | Standards Alignment |
|--|---------------------|
| RIT Range: 203-212   |                     |
| 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           |
| 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                            | 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            |
| <u>Decompose fractions</u>   | 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            |

**Perform Operations** Standards Alignment RIT Range: 203-212 4.NF.B.4 | 5.NF.B.4 Multiply fractions and whole numbers 4.NF.B.4 | 5.NF.B.6 Interpret multiplying fraction and whole number word problems 4.NF.B.4 | 5.NF.B.6 Multiply fractions and whole numbers word problems Add fractions (denominators 10 & 100) 4.NF.C.5 4.NF.C.5 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) Decimals in words 4.NF.C.6 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.OA.A.1 Compare with multiplication 4.OA.A.1 Compare with multiplication word problems 4.OA.A.2 Multiplication and division word problems 4.OA.A.3 Multi-step estimation word problems 4.OA.A.3 Multi-step word problems with whole numbers 4.OA.B.4 Factor pairs 4.OA.B.4 **Identify composite numbers** Identify factors and multiples 4.OA.B.4 4.OA.B.4 <u>Identify prime numbers</u>

**Perform Operations** Standards Alignment RIT Range: 213-219 4.NF.B.4 | 5.NF.B.4 Multiply fractions and whole numbers 4.NF.B.4 | 5.NF.B.6 Interpret multiplying fraction and whole number word problems 4.NF.B.4 | 5.NF.B.6 Multiply fractions and whole numbers word problems Multiply and divide by powers of 10 5.NBT.A.2 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.A.4 Round decimals 5.NBT.A.4 Round decimals challenge 5.NBT.A.4 Round decimals using a number line 5.NBT.A.4 Round decimals word problems 5.NBT.B.5 Estimate multi-digit multiplication problems 5.NBT.B.5 Multi-digit multiplication 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

**Perform Operations** Standards Alignment RIT Range: 213-219 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 5.NBT.B.7 Divide whole numbers like 63÷12 to get a decimal 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 **Dividing decimals 1** 5.NBT.B.7 **Dividing decimals 2** 5.NBT.B.7 Estimating with adding decimals 5.NBT.B.7 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 Subtract decimals like 0.75-0.56 5.NBT.B.7 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

**Perform Operations** Standards Alignment RIT Range: 213-219 5.NBT.B.7 | 6.NS.B.3 Adding decimals: hundredths 5.NBT.B.7 | 6.NS.B.3 Adding decimals: tenths 5.NBT.B.7 | 6.NS.B.3 Multiplying decimals like 4x0.6 (standard algorithm) Subtracting decimals: hundredths 5.NBT.B.7 | 6.NS.B.3 5.NBT.B.7 | 6.NS.B.3 Subtracting decimals: tenths 5.NF.A.1 Add and subtract fractions challenge 5.NF.A.1 Add and subtract mixed numbers with unlike denominators 1 5.NF.A.1 Add and subtract mixed numbers with unlike denominators 2 Add fractions with unlike denominators 5.NF.A.1 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.2 Add and subtract fractions word problems 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** Multiplying fractions with visuals 5.NF.B.4 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

| Perform Operations  | Standards Alignment  |
|---|----------------------|
| RIT Range: 220-223  |                      |
| Adding decimals: hundredths                               | 5.NBT.B.7   6.NS.B.3 |
| Adding decimals: tenths                                   | 5.NBT.B.7   6.NS.B.3 |
| Multiplying decimals like 4x0.6 (standard algorithm)      | 5.NBT.B.7   6.NS.B.3 |
| Subtracting decimals: hundredths                          | 5.NBT.B.7   6.NS.B.3 |
| Subtracting decimals: tenths                              | 5.NBT.B.7   6.NS.B.3 |
| Divide mixed numbers                                      | 6.NS.A.1             |
| Divide whole numbers by fractions                         | 6.NS.A.1             |
| <u>Dividing fractions</u>                                 | 6.NS.A.1             |
| Dividing fractions word problems                          | 6.NS.A.1             |
| Understanding dividing fractions by fractions             | 6.NS.A.1             |
| Division by 2-digits                                      | 6.NS.B.2             |
| Multi-digit division                                      | 6.NS.B.2             |
| 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        | 6.NS.B.3             |
| 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: 224-227  |                      |
| Absolute value to find distance                           | 7.NS.A.1             |
| Absolute value to find distance                           | 7.NS.A.1             |

**Perform Operations** Standards Alignment RIT Range: 224-227 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 Adding & subtracting rational numbers 7.NS.A.1 7.NS.A.1 Adding negative numbers 7.NS.A.1 Adding negative numbers on the number line Addition & subtraction: find the missing value 7.NS.A.1 7.NS.A.1 Equivalent expressions with negative numbers Interpret negative number addition and subtraction expressions 7.NS.A.1 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 | 7.NS.A.2 Exponents with integer bases 7.NS.A.1 | 7.NS.A.2 Order of operations with negative numbers 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 Comparing rational numbers 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)

Perform Operations Standards Alignment

RIT Range: 224-227

Exponents with negative fractional bases 7.NS.A.2

Multiplying & dividing negative numbers 7.NS.A.2

Multiplying & dividing negative numbers word problems 7.NS.A.2

Multiplying positive and negative fractions 7.NS.A.2

Negative signs in fractions 7.NS.A.2

Signs of expressions 7.NS.A.2

Signs of expressions challenge 7.NS.A.2

Simplify complex fractions 7.NS.A.2 | 7.NS.A.2 | 7.NS.A.3

RIT Range: 232-245

Interpret units in formulas HSN-Q.A.1

Multiple units word problems

HSN-Q.A.1

RIT Range: 246-255

Classify complex numbers HSN-CN.A.1

Parts of complex numbers HSN-CN.A.1

Simplify roots of negative numbers HSN-CN.A.1

Add & subtract complex numbers HSN-CN.A.2

Multiply complex numbers HSN-CN.A.2

Multiply complex numbers (basic)

HSN-CN.A.2

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

#### Standards Alignment

RIT Range: 224-227

Rewriting decimals as fractions challenge

7.EE.B.3

Extend and Use Properties Standards Alignment

RIT Range: <160

Compare numbers of objects 1 K.CC.C.6

RIT Range: 161-178

Halves and fourths 1.G.A.3

2-digit place value challenge 1.NBT.B.2

Groups of ten objects 1.NBT.B.2

Compare 2-digit numbers 1.NBT.B.3

Compare 2-digit numbers 2 1.NBT.B.3

RIT Range: 179-191

Equal parts of circles and rectangles 2.G.A.3

Hundreds, tens, and ones 2.NBT.A.1

3-digit place value challenge 2.NBT.A.3

Compare 3-digit numbers 2.NBT.A.4

RIT Range: 192-202

Cut shapes into equal parts 3.G.A.2 | 3.NF.A.1

Identify unit fractions 3.G.A.2 | 3.NF.A.1

Identify numerators and denominators 3.NF.A.1

Recognize fractions 3.NF.A.1

Recognize fractions greater than 1 3.NF.A.1

Find 1 on the number line 3.NF.A.2

Fractions on the number line 3.NF.A.2

Unit fractions on the number line 3.NF.A.2

Relate fractions to 1 3.NF.A.2 | 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 3.NF.A.3

| Extend and Use Properties                                    | Standards Alignment |
|--|---------------------|
| RIT Range: 192-202   |                     |
| Compare fractions with the same numerator or denominator     | 3.NF.A.3            |
| Equivalent fraction models                                   | 3.NF.A.3            |
| Equivalent fractions on the number line                      | 3.NF.A.3            |
| Visually compare fractions 1                                 | 3.NF.A.3            |
| Write fractions as whole numbers                             | 3.NF.A.3            |
| RIT Range: 203-212   |                     |
| Creating largest or smallest number                          | 4.NBT.A.1           |
| Divide whole numbers by 10                                   | 4.NBT.A.1           |
| Multiply and divide by 10                                    | 4.NBT.A.1           |
| Multiply whole numbers by 10                                 | 4.NBT.A.1           |
| Place value when multiplying and dividing by 10              | 4.NBT.A.1           |
| Compare multi-digit numbers                                  | 4.NBT.A.2           |
| Compare multi-digit numbers word problems                    | 4.NBT.A.2           |
| Compare numbers: place value challenge                       | 4.NBT.A.2           |
| Intro to place value   | 4.NBT.A.2           |
| Regroup whole numbers  | 4.NBT.A.2           |
| Whole number place value challenge                           | 4.NBT.A.2           |
| Write numbers in written form                                | 4.NBT.A.2           |
| Write whole numbers in expanded form                         | 4.NBT.A.2           |
| Equivalent fractions   | 4.NF.A.1            |
| Equivalent fractions (fraction models)                       | 4.NF.A.1            |
| Common denominators  | 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            |

**Extend and Use Properties** Standards Alignment RIT Range: 203-212 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) 4.NF.C.7 Compare decimals and fractions Compare decimals visually 4.NF.C.7 RIT Range: 213-219 5.G.A.1 **Graph points** 5.G.A.1 <u>Identify coordinates</u> **Identify points** 5.G.A.1 5.NBT.A.1 Compare decimal place value 5.NBT.A.1 Value of a digit 5.NBT.A.2 Understanding moving the decimal 5.NBT.A.3 Compare decimals challenge 5.NBT.A.3 Compare decimals through thousandths 5.NBT.A.3 Compare decimals word problems 5.NBT.A.3 Decimals in expanded form 5.NBT.A.3 Decimals in written form 5.NBT.A.3 Order decimals 5.NBT.A.3 Place value names 5.NBT.A.3 Regroup decimals 5.NF.B.3 Fractions as division

| Extend and Use Properties                       | Standards Alignment |
|---|---------------------|
| RIT Range: 220-223                              |                     |
| 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 |
| Reflecting points in the coordinate plane       | 6.NS.C.6   6.NS.C.8 |
| Compare and order absolute values               | 6.NS.C.7            |
| Compare and order 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                  | 6.NS.C.7            |
| RIT Range: 228-231                              |                     |
| Classify numbers                                | 8.NS.A.1            |
| Classify numbers: rational & irrational         | 8.NS.A.1            |

**Extend and Use Properties** Standards Alignment RIT Range: 228-231 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 8.NS.A.2 Approximating square roots (1) 8.NS.A.2 Approximating square roots (2) 8.NS.A.2 Comparing irrational numbers 8.NS.A.2 Comparing irrational numbers with a calculator RIT Range: 232-245 HSN-RN.A.2 4th & 5th roots HSN-RN.A.2 Evaluate radical expressions challenge HSN-RN.A.2 Fractional exponents HSN-RN.A.2 Properties of exponents (rational exponents) Properties of exponents challenge (rational exponents) HSN-RN.A.2 HSN-RN.A.2 Rational exponents challenge HSN-RN.A.2 Simplify square roots HSN-RN.A.2 Simplify square-root expressions HSN-RN.A.2 Simplify square-roots (variables) HSN-RN.A.2 **Unit-fraction exponents** HSN-RN.B.3 Rational vs. irrational expressions

| Geometric Measurement and Relationships      | Standards Alignment |
|--|---------------------|
| RIT Range: <160                              |                     |
| Name shapes 1                                | K.G.A.1             |
| Relative position                            | K.G.A.1             |
| Name shapes 2                                | K.G.A.2             |
| Compare shapes                               | K.G.B.4             |
| Compose shapes                               | K.G.B.6             |
| Compare size                                 | K.MD.A.2            |
| RIT Range: 161-178                           |                     |
| Name shapes 3                                | 1.G.A.1             |
| Indirect measurement                         | 1.MD.A.1            |
| Order by length                              | 1.MD.A.1            |
| Measure lengths 1                            | 1.MD.A.2            |
| Tell time to hour or half hour               | 1.MD.B.3            |
| RIT Range: 179-191                           |                     |
| Name shapes 4                                | 2.G.A.1             |
| Measure lengths 2                            | 2.MD.A.1            |
| Estimate lengths                             | 2.MD.A.3            |
| Length word problems                         | 2.MD.B.5            |
| Tell time with a labeled clock               | 2.MD.C.7            |
| Tell time without labels                     | 2.MD.C.7            |
| RIT Range: 192-202                           |                     |
| Tell time to the nearest minute              | 3.MD.A.1            |
| Telling time on the number line              | 3.MD.A.1            |
| Telling time word problems (within the hour) | 3.MD.A.1            |
| Time differences (within the hour)           | 3.MD.A.1            |
| Time word problems with number line          | 3.MD.A.1            |

| Geometric Measurement and Relationships         | Standards Alignment |
|---|---------------------|
| RIT Range: 192-202                              |                     |
| Word problems with mass                         | 3.MD.A.2            |
| Word problems with volume                       | 3.MD.A.2            |
| Estimate mass (grams and kilograms)             | 3.MD.A.2   4.MD.A.1 |
| Estimate volume (milliliters and liters)        | 3.MD.A.2   4.MD.A.1 |
| <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: 203-212                              |                     |
| Estimate mass (grams and kilograms)             | 3.MD.A.2   4.MD.A.1 |
| Estimate volume (milliliters and liters)        | 3.MD.A.2   4.MD.A.1 |
| Angle types                                     | 4.G.A.1             |
| Draw parallel and perpendicular lines           | 4.G.A.1             |

| Geometric Measurement and Relationships              | Standards Alignment |
|--|---------------------|
| RIT Range: 203-212                                   |                     |
| Draw rays, lines, & line segments                    | 4.G.A.1             |
| 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             |
| 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                                  | 4.G.A.2             |
| 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            |
| Time differences                                     | 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            |
| <u>Draw angles</u>                                   | 4.MD.C.6            |
| Measure angles                                       | 4.MD.C.6            |
| Angles in circles                                    | 4.MD.C.6   5.MD.C.5 |
| Decompose angles                                     | 4.MD.C.7            |

| Geometric Measurement and Relationships                   | Standards Alignment |
|---|---------------------|
| RIT Range: 213-219  |                     |
| Angles in circles   | 4.MD.C.6   5.MD.C.5 |
| Coordinate plane word problems (quadrant 1 - challenging) | 5.G.A.2             |
| Distance between points in first quadrant                 | 5.G.A.2             |
| Graph points  | 5.G.A.2             |
| <u>Identify coordinates</u>                               | 5.G.A.2             |
| <u>Identify points</u>                                    | 5.G.A.2             |
| Shapes on the coordinate plane                            | 5.G.A.2             |
| <u>Properties of shapes</u>                               | 5.G.B.3             |
| 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 formula intuition                                  | 5.MD.C.5            |
| Volume word problems                                      | 5.MD.C.5            |
| RIT Range: 220-223  |                     |
| 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: 220-223 6.G.A.2 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.3 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.4 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 Surface area word problems 6.G.A.4 RIT Range: 224-227 7.G.A.1 Constructing 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 Relate scale drawings to area 7.G.A.1 Scale drawings 7.G.A.1 Scale factor in scale drawings 7.G.A.2 Constructing triangles 7.G.A.2 Ordering triangle sides and angles 7.G.A.2 Triangle side length rules 7.G.A.3 | HSG-GMD.B.4 Cross sections of 3D objects (basic) 7.G.B.4 Area and circumference of circles challenge

|       | metric Measurement and Relationships                          | Standards Alignment                |
|-------|---|------------------------------------|
| RIT   | Range: 224-227  |                                    |
|       | Area and circumference of parts of circles                    | 7.G.B.4                            |
|       | Area of a circle  | 7.G.B.4                            |
|       | Circumference of a circle                                     | 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 missing angles  | 7.G.B.5                            |
|       | Identifying supplementary, complementary, and vertical angles | 7.G.B.5                            |
|       | Quadrilateral angles  | 7.G.B.5                            |
|       | <u>Unknown angle problems (with algebra)</u>                  | 7.G.B.5                            |
|       | <u>Vertical angles</u>  | 7.G.B.5                            |
|       | Shaded areas  | 7.G.B.6                            |
|       | Volume and surface area word problems                         | 7.G.B.6                            |
| RIT   | Range: 228-231  |                                    |
|       | 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                            |
|       | Solid geometry  | 8.G.C.9   HSG-GMD.A.3              |
|       | Solid geometry word problems                                  | 8.G.C.9   HSG-GMD.A.3   HSG-MG.A.1 |
| RIT I | Range: 232-255  |                                    |
|       | Cross sections of 3D objects (basic)                          | 7.G.A.3   HSG-GMD.B.4              |
|       | Solid geometry  | 8.G.C.9   HSG-GMD.A.3              |
|       | Solid geometry word problems                                  | 8.G.C.9   HSG-GMD.A.3   HSG-MG.A.1 |
|       |   |                                    |

| Geometric Measurement and Relationships           | Standards Alignment      |
|---|--------------------------|
| RIT Range: 232-255                                |                          |
| Inscribed angles                                  | HSG-C.A.2                |
| Inscribed shapes                                  | HSG-C.A.2                |
| Tangents of circles problems                      | HSG-C.A.2                |
| Quiz: 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              |
| Points inside/outside/on a circle                 | HSG-GPE.B.4              |
| Parallel & perpendicular lines from equation      | HSG-GPE.B.5              |
| Parallel & perpendicular lines from graph         | HSG-GPE.B.5              |
| Write equations of parallel & perpendicular lines | HSG-GPE.B.5              |

Geometric Measurement and Relationships Standards Alignment

RIT Range: 232-255

<u>Divide line segments</u>
HSG-GPE.B.6

Midpoint formula HSG-GPE.B.6

Area & perimeter on the coordinate plane HSG-GPE.B.7

Coordinate plane word problems: polygons HSG-GPE.B.7

| Congruence, Similarity, Right Triangles, & Trig | Standards Alignment                               |  |
|---|---|--|
| RIT Range: 203-212                              |   |  |
| 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: 228-231                              |   |  |
| 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       |  |
| Reflect points                                  | 8.G.A.1   8.G.A.3   HSG-CO.A.2   HSG-CO.A.5       |  |
| Rotate points                                   | 8.G.A.1   8.G.A.3   HSG-CO.A.2   HSG-CO.A.5       |  |
| Translate points                                | 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 shapes                                  | 8.G.A.1   8.G.A.3   HSG-CO.A.5                    |  |
| Translate shapes                                | 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-<br>SRT.A.2 |  |
| Dilations: scale factor                         | 8.G.A.3   8.G.A.4   HSG-SRT.A.1   HSG-<br>SRT.A.2 |  |
| <u>Dilate points</u>                            | 8.G.A.3   HSG-SRT.A.1                             |  |
| Similarity & transformations                    | 8.G.A.4   HSG-SRT.A.2                             |  |
| Angle relationships with parallel lines         | 8.G.A.5   |  |

| Congruence, Similarity, Right Triangles, & Trig                 | Standards Alignment                         |
|---|---|
| RIT Range: 228-231  |   |
| Equation practice with angle addition                           | 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 and perimeter              | 8.G.B.7                                     |
| Use Pythagorean theorem to find isosceles triangle side lengths | 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: 232-255  |   |
| 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              |
| Determine rotations   | 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 |
| Reflect points  | 8.G.A.1   8.G.A.3   HSG-CO.A.2   HSG-CO.A.5 |
| Rotate points   | 8.G.A.1   8.G.A.3   HSG-CO.A.2   HSG-CO.A.5 |
| Translate points  | 8.G.A.1   8.G.A.3   HSG-CO.A.2   HSG-CO.A.5 |

Congruence, Similarity, Right Triangles, & Trig Standards Alignment

RIT Range: 232-255

Determine reflections 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 shapes 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

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-

SRT.A.2

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

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

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

Geometric definitions HSG-CO.A.1

Sequences of transformations HSG-CO.A.2

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

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

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

Advanced reflections HSG-CO.A.5

Rotate shapes HSG-CO.A.5

Rotate shapes: center  $\neq$  (0,0)

Determine mappings HSG-CO.B.6

Proofs with transformations

HSG-CO.C.9

Similarity & transformations (advanced) HSG-SRT.A.2

Determine congruent triangles HSG-SRT.B.5

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

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

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

Congruence, Similarity, Right Triangles, & Trig Standards Alignment

RIT Range: 232-255

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

Solve similar triangles (basic)

HSG-SRT.B.5

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

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

DEPRECATED Trigonometry 0.5 HSG-SRT.C.6

DEPRECATED Trigonometry 1.5 HSG-SRT.C.6

Reciprocal trig ratios HSG-SRT.C.6

Solve for a side in right triangles

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

Trigonometric ratios in right triangles

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

#### Statistics and Probability Interpreting Categorical and Quantitative Data Standards Alignment RIT Range: <160 K.MD.B.3 Compare numbers of objects 2 RIT Range: 161-178 Solve problems with bar graphs 1 1.MD.C.4 RIT Range: 179-191 2 MD D 10 Solve problems with bar graphs 2 2.MD.D.10 Solve problems with picture graphs 1 2.MD.D.9 Make bar graphs 1 2.MD.D.9 Make line plots 2.MD.D.9 Solve problems with line plots RIT Range: 192-202 3.MD.B.3 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.4 Graph data on line plots 3.MD.B.4 Read line plots (data with fractions) RIT Range: 203-212 4.MD.B.4 Interpret dot plots with fractions 1 RIT Range: 213-219 5.MD.B.2 Interpret dot plots with fraction operations

RIT Range: 220-223

Statistical questions

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6.SP.A.1

# Statistics and Probability

| Interpreting Categorical and Quantitative Data       | Standards Alignment  |
|--|--|
| RIT Range: 220-223                                   | , and the second |
| 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   |
| 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   |
| 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  |
| 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: 224-227                                   |  |
| Comparing distributions                              | 7.SP.B.3   7.SP.B.4  |
|  |  |
| RIT Range: 228-231                                   | 0.00 4.4   |
| Constructing scatter plots                           | 8.SP.A.1   |
| Describing trends in scatter plots                   | 8.SP.A.1   |

## Statistics and Probability

| Interpreting Categorical and Quantitative Data                                | Standards Alignment                  |
|---|--------------------------------------|
| RIT Range: 228-231  |                                      |
| Making good 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                             |
| Interpreting slope and y-intercept for linear models                          | 8.SP.A.3                             |
| Estimating slope of line of best fit  | 8.SP.A.3   HSS-ID.B.6                |
| Interpreting two-way tables   | 8.SP.A.4                             |
| Reading two-way frequency tables  | 8.SP.A.4                             |
| Reading two-way relative frequency tables                                     | 8.SP.A.4                             |
| Two-way frequency tables  | 8.SP.A.4                             |
| Two-way relative frequency tables   | 8.SP.A.4                             |
| RIT Range: 232-255  |                                      |
| Estimating slope of line of best fit  | 8.SP.A.3   HSS-ID.B.6                |
| 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                           |

#### Statistics and Probability

Using Sampling and Probability to Make Decisions

Standards Alignment

RIT Range: 224-227

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.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: 232-255

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

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