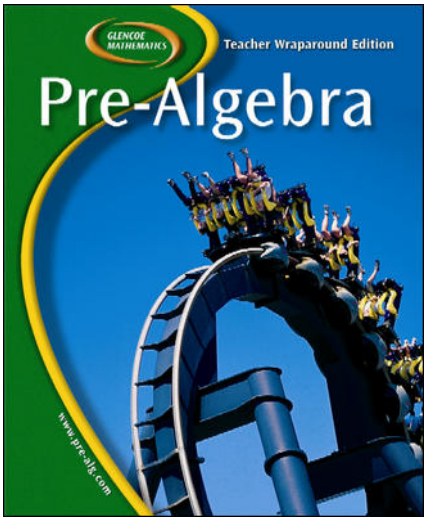
Glencoe

Math Grade 8
Assessment Anchors and
Eligible Content

Pennsylvania



Pre-Algebra

STANDARDS	PAGE REFERENCES
M8.A Numbers and Operations	
ASSESSMENT ANCHOR **M8.A.1** **Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.**	
M8.A.1.1 Represent numbers in equivalent forms. ***Reference: 2.1.8.A, 2.1.8.B***	
M8.A.1.1.1 Represent numbers using scientific notation and/or exponential forms.	**Student Edition:** 153-157, 186-190, 204 #52-#55, 209 #58-#61 **Teacher's Guide:** DI 187l; OEA 157, 190
M8.A.1.1.2 Find the square or cube of a whole number (single digit) and/or the square root of a perfect square (without a calculator).	**Student Edition:** 153-157, 436-440, 441-445 *Getting Started* 435 **Teacher's Guide:** DI 438; OEA 157, 440; TtoT 154; UM 437

Codes used for Teacher's Guide pages are the initial caps of headings on that page.

STANDARDS	PAGE REFERENCES
ASSESSMENT ANCHOR **M8.A.2** **Understand the meanings of operations, use operations and understand how they relate to each other.**	
M8.A.2.1 Complete calculations by applying the order of operations. ***Reference: 2.2.8.A***	
M8.A.2.1.1 Simplify numeric expressions involving integers, using the order of operations. (May include all types of grouping symbols. No combining negatives with exponents or compound exponents.)	**Student Edition:** 12-16, 17-21, 27 #56-#58, 32 #65-#66, 153-157, 401 #46-#51, 464 #50-#52 *Standardized Test Practice* 52 #2, 53 #14-#15 **Teacher's Guide:** DI 13
M8.A.2.2 Represent or solve problems using rates, ratios, proportions and/or percents. ***Reference: 2.1.8.D, 2.3.8.B***	
M8.A.2.2.1 Solve problems involving percents (e.g., tax, discounts, etc.). Do not include percent increase or decrease.	**Student Edition:** 281-285, 288-292, 293-297, 298-302, 310-314 *Algebra Activity* 286-287 *Spreadsheet Investigation* 303 **Teacher's Guide:** DI 282, 290, 294; OEA 285, 292, 297, 302
M8.A.2.2.2 Represent or solve rate problems (e.g., unit rates, simple interest, distance, etc.). Students may be asked to solve for any term (formulas provided on the reference sheet for distance and interest).	**Student Edition:** 131-136, 264-268, 298-302, 304-308, 359 #58-#61, 387-391, 393-397, 445 #77-#78 *Algebra Activity* 386, 392 *Reading Mathematics* 269 **Teacher's Guide:** DI 266
ASSESSMENT ANCHOR **M8.A.3** **Compute accurately and fluently and make reasonable estimates.**	
M8.A.3.1 Determine the appropriateness of overestimating, underestimating or calculating an exact answer in problem-solving situations. ***Reference: 2.2.8.F***	
M8.A.3.1.1 Identify, use and/or explain when it is appropriate to round up or round down.	**Student Edition:** 9 #8, 10 #31-#36, 242 #32-#35, 283 Ex 5, 443 Ex 3, 590-594 *Prerequisite Skills* 711 *Teaching Tip* 201

STANDARDS	PAGE REFERENCES
M8.A.3.1.2 Identify, apply and/or explain when an exact answer is needed or when estimation is appropriate.	**Student Edition:** 8 Ex 3, 9 #1, 209 #70-#75, 220-221 Ex 1-4, 230 #75-#80, 232-233 Ex 1-3, 293-297, 436-440, 441-445 *Getting Started* 5 #10-#27 *Prerequisite Skills* 712, 714, 716, 717 *Study Tip* 121
ASSESSMENT ANCHOR **M8.A.3** **Compute accurately and fluently and make reasonable estimates.**	
M8.A.3.2 Use estimation strategies in problem-solving situations. ***Reference: 2.2.8.D***	
M8.A.3.2.1 Estimate answers to problems involving percents (percents will be limited to: 1%, 10%, 15%, 20%, 25%, 50% or 75%).	**Student Edition:** 293-297, 302 #46-#48 **Teacher's Guide:** DI 294; OEA 297
M8.A.3.3 Compute and/or explain operations with integers, fractions and/or decimals. ***Reference: 2.2.8.B***	
M8.A.3.3.1 Add, subtract, multiply and/or divide integers, fractions and/or decimals with and without a calculator (straight computation or word problems).	**Student Edition:** 64-68, 70-74, 75-79, 80-84, 210-214, 215-219, 220-224, 232-236 *Algebra Activity* 62-63 *Graphing Calculator Investigation* 243 *Prerequisite Skills* 713, 715 **Teacher's Guide:** DI 73, 212; OEA 79, 84, 214, 219
M8.B Measurement	
ASSESSMENT ANCHOR **M8.B.1** **Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.**	
M8.B.1.1 Convert measurements. ***Reference: 2.3.5.D***	
M8.B.1.1.1 Convert among metric measurements (milli, centi, kilo using meter, liter and gram) (table of equivalency provided on the reference sheet).	**Student Edition:** 168 #76-#78 *Getting Started* 263 #10-#15 *Prerequisite Skills* 718-719

STANDARDS	PAGE REFERENCES
M8.B.1.1.2 Convert customary measurements up to 2 units above or below the given unit (e.g., inches to yards, pints to gallons) (table of equivalency provided on the reference sheet).	**Student Edition:** 168 #76-#78, 218 #47 *Getting Started* 263 #1-#9 *Prerequisite Skills* 720-721
M8.B.1.1.3 Convert time up to 2 units above or below given unit (e.g., seconds to hours).	**Student Edition:** 168 #79 *Getting Started* 263 #4-#5
M8.B.1.1.4 Convert from Fahrenheit to Celsius or Celsius to Fahrenheit (formulas provided on the reference sheet).	**Student Edition:** 333 #41 The teacher also may integrate this standard into the lesson on formulas on pages 131-136.
ASSESSMENT ANCHOR **M8.B.2** **Apply appropriate techniques, tools and formulas to determine measurements.**	
M8.B.2.1 Determine the measurement of a missing side(s) or angle(s) in a polygon. ***Reference: 2.3.8.C, 2.9.8.D***	
M8.B.2.1.1 Determine the total number of degrees in the interior angles of a polygon in 3-8 sided figures (formula provided on the reference sheet).	**Student Edition:** 453-457, 513-517, 627-631, 543 #31-#33 **Teacher's Guide:** DI 454
M8.B.2.1.2 Determine the measurement of one interior angle of a regular polygon (3-8 sided polygons, formula provided on the reference sheet).	**Student Edition:** 527-531, 538 #48-#50
M8.B.2.1.3 Determine the number of sides of a polygon given the total number of degrees in the interior angles (3-8 sided polygons, formula provided on the reference sheet).	**Student Edition:** 527-531
M8.B.2.3 Use, describe and/or develop procedures to determine measures of perimeter, circumference, area, surface area and/or volume. ***Reference: 2.3.8.A, 2.3.8.D***	
M8.B.2.3.1 Calculate the surface area of cubes and rectangular prisms (formula provided on the reference sheet).	**Student Edition:** 573-577, 578-582 **Teacher's Guide:** DI 574, 580; OEA 576, 582; UM 579

STANDARDS	PAGE REFERENCES
M8B.2.3.2 Calculate the volume of cubes and rectangular prisms (formulas provided on the reference sheet).	**Student Edition:** 563-567, 568-572 *Geometry Activity* 562 **Teacher's Guide:** DI 570; OEA 567
M8.B.2.3.3 Determine the appropriate type of measurement (circumference, perimeter, area, surface area, volume) for a given situation (e.g., which measurement is needed to determine the amount of carpeting for a room).	**Student Edition:** 520-525, 533-538, 539-543, 563-567, 568-572, 573-577, 578-582 **Teacher's Guide:** OEA 525; UM 534
M8.C Geometry	
ASSESSMENT ANCHOR **M8.C.1** **Analyze characteristics and properties of two- and three-dimensional geometric shapes and demonstrate understanding of geometric relationships.**	
M8.C.1.1 Identify, use, and/or describe properties of angles, triangles, quadrilaterals, circles, pyramids, cubes, prisms, spheres, cones and/or cylinders. ***Reference: 2.3.8.C, 2.9.8.B, 2.9.8.E, 2.9.8.D***	
M8.C.1.1.1 Match the three-dimensional figure with its net (cube, cylinder, cone, prism, pyramid). Any measurements used should be consistent in the stem and answer choices.	**Student Edition:** 573-574, 578-579 *Geometry Activity* 554-555
M8.C.1.1.2 Define, identify and/or use properties of angles formed by intersecting lines (complementary, supplementary, adjacent and/or vertical angles).	**Student Edition:** 492-497 **Teacher's Guide:** TtoT 495; UM 493
M8.C.1.1.3 Define, identify and/or use properties of angles formed when two parallel lines are cut by a transversal (alternate interior, alternate exterior, vertical corresponding).	**Student Edition:** 492-497 **Teacher's Guide:** DI 496; OEA 497; TtoT 495; UM 493
M8.C.1.2 Compute measures of sides of right triangles using the Pythagorean Theorem. ***Reference: 2.10.8.A***	
M8.C.1.2.1 Use the Pythagorean Theorem to find the measure of a missing side of a right triangle (formula provided on the reference sheet – whole numbers only).	**Student Edition:** 460-464, Introduction on 466, 470 #35-#37 *Algebra Activity* 458-459 **Teacher's Guide:** OEA 464

STANDARDS	PAGE REFERENCES
ASSESSMENT ANCHOR **M8.C.2 Locate points or describe relationships using the coordinate plane.**	
M8.C.2.1 Plot and/or identify ordered pairs on a coordinate plane. ***Reference: 2.8.5.H***	
M8.C.2.1.1 Plot, locate or identify ordered pairs on a coordinate plane (the point may be a vertex of a polygon).	**Student Edition:** 33-38, 40-44, 85-89, 375-379, 381-385, 409-413, 414-418, 475 #22, 506-511 *Algebra Activity* 39, 512 *Getting Started* 367 #6-#11 *Graphing Calculator Investigation* 45-46 **Teacher's Guide:** DI 34; OEA 38, 89; TtoT 35
M8.D Algebraic Concepts	
ASSESSMENT ANCHOR **M8.D.1 Demonstrate an understanding of patterns, relations and functions.**	
M8.D.1.1 Analyze, extend or develop descriptions of patterns or functions. ***Reference: 2.8.8.B, 2.8.8.G, 2.11.8.C***	
M8.D.1.1.1 Continue a numeric or algebraic pattern (pattern must show 3 repetitions – may include up to 2 operations, squares and square roots).	**Student Edition:** 6-10, 16 #55-#58, 102 #69-#71, 249-252, 268 #54-#55, 344 #54-#56 *Algebra Activity* 253, 386 **Teacher's Guide:** DI 8; OEA 252
M8.D.1.1.2 Find missing elements in numeric or geometric patterns and/or functions (may be given a table or rule – pattern must show 3 repetitions).	**Student Edition:** 6-10, 16 #55-#58, 102 #69-#71, 249-252, 268 #54-#55, 344 #54-#56 *Algebra Activity* 253, 386 **Teacher's Guide:** DI 8; OEA 252
M8.D.1.1.3 Determine the rule of a function (given elements in an input-output table, chart or list – limit to linear functions).	**Student Edition:** 379 #51, 387-391, 395-397, 398-401, 404-408 *Algebra Activity* 386, 392

STANDARDS	PAGE REFERENCES
ASSESSMENT ANCHOR **M8.D.2** **Represent and/or analyze mathematical situations using numbers, symbols, words, tables and/or graphs.**	
M8.D.2.1 Select and/or use a strategy to simplify an expression, solve an equation or inequality and/or check the solution for accuracy. ***Reference: 2.8.8.C, 2.8.8.E***	
M8.D.2.1.1 Solve one- or two-step equations and inequalities (should not include absolute values – one variable only).	**Student Edition:** 110-114, 115-119, 120-124, 126-130, 131-136, 330-333, 334-338, 340-344, 345-349, 350-354, 355-359 *Algebra Activity* 108-109 **Teacher's Guide:** DI 113, 117; OEA 114, 119, 124
M8.D.2.1.2 Use substitution to check the accuracy of a given value for an equation or inequality (simple inequalities with one variable).	**Student Edition:** 110-114, 115-119, 121 Ex 1, 331 Ex 2, 334-335 Ex 1 & 2, 345-349, 351 Ex 1, 355 Ex 1& 2 *Algebra Activity* 108-109 *Study Tip* 111, 346 **Teacher's Guide:** UM 116
M8.D.2.1.3 Determine the value of an algebraic expression by simplifying and/or substituting a number for the variable.	**Student Edition:** 17-21, 23-27, 28-32, 72 Ex 4, 73 #40-#51, 77 Ex 5, 78 #36-#53, 82 Ex 3, 83 #26-#31, 98-102, 103-107 *Spreadsheet Investigation* 22 **Teacher's Guide:** DI 18, 105; OEA 21, 107; UM 104
M8.D.2.2 Create and/or interpret expressions, equations or inequalities that model problem situations. ***Reference: 2.8.8.C***	
M8.D.2.2.1 Match a written situation to its numeric and/or algebraic expression, equation or inequality (up to two variables in equations or expressions – one variable with inequalities).	**Student Edition:** 105 Ex 3, 106 #50-#55, 112 Ex 4, 113 #43-#44, 115-119, 120-124, 126-130, 270-274, 298-302, 330-333, 334-338, 341 Ex 3, 343 #13-#16, 345-349, 350-354, 355-359 *Reading Mathematics* 125, 339 **Teacher's Guide:** DI 105
M8.D.2.2.2 Write and/or solve an equation for a given problem situation (one variable only).	**Student Edition:** 112 Ex 4, 113 #43-#44, 115-119, 120-124, 126-130, 270-274, 298-302, 330-333, 334-338 *Reading Mathematics* 125

STANDARDS	PAGE REFERENCES
ASSESSMENT ANCHOR **M8.D.3** **Describe or use models to represent quantitative relationships.**	
M8.D.3.1 Represent relationships with tables or graphs on the coordinate plane. ***Reference: 2.8.8.C, 2.8.8.H***	
M8.D.3.1.1 Graph a linear function based on an x/y table (integers only).	**Student Edition:** 375-379, 381-385
M8.D.3.1.2 Match the graph of a linear function to its x/y table (integers only).	**Student Edition:** 375-379, 381-385
M8.D.3.1.3 Match the linear equation (y = mx + b form) to the x/y table (integers only in the table).	**Student Edition:** 375-379, 381-385
M8.E Data Analysis and Probability	
ASSESSMENT ANCHOR **M8.E.1** **Formulate or answer questions that can be addressed with data and/or organize, display, interpret or analyze data.**	
M8.E.1.1 Choose, display or interpret data (tables, charts, graphs, etc.). ***Reference: 2.6.5.A, 2.6.8.E, 2.7.8.D, 2.6.3.B***	
M8.E.1.1.1 Choose and/or explain the correct representation (graph) for a set of data.	**Student Edition:** 40-44, 409-413, 606-611, 617-621, 623-628, 630-633 *Algebra Activity* 39 *Graphing Calculator Investigation* 45-46, 622, 629 *Prerequisite Skills* 722-723 **Teacher's Guide:** DI 619, 632; OEA 611, 621, 628
M8.E.1.1.2 Analyze data and/or answer questions pertaining to data shown in multiple line graphs, circle graphs or histograms.	**Student Edition:** 623-628, 630-633 *Graphing Calculator Investigation* 629 *Prerequisite Skills* 722-723
M8.E.1.1.3 Interpret data shown in stem-and-leaf or box-and-whisker plots.	**Student Edition:** 606-611, 612-616, 617-621 *Graphing Calculator Investigation* 622 *Standardized Test Practice* 665 #17-#18 **Teacher's Guide:** DI 611, 613, 619; OEA 611, 621

STANDARDS	PAGE REFERENCES
ASSESSMENT ANCHOR **M8.E.2 Understand and/or apply basic concepts of probability or outcomes.**	
M8.E.2.1 Calculate the probability of an event. ***Reference: 2.7.8.E***	
M8.E.2.1.1 Find the probability for a mutually exclusive or an independent event (written as a fraction in simplest form).	**Student Edition:** 310-314, 650-655 *Standardized Test Practice* 664 #10 **Teacher's Guide:** DI 311, 651; OEA 314, 655; UM 652
ASSESSMENT ANCHOR **M8.E.3 Understand and/or apply basic concepts of probability or outcomes.**	
M8.E.3.1 Determine the number of combinations and/or permutations for an event. ***Reference: 2.7.8.A***	
M8.E.3.1.1 Determine/show the number of permutations and/or combinations for an event using up to four choices (e.g., organized list, etc.).	**Student Edition:** 641-645 *Algebra Activity* 640 *Standardized Test Practice* 664 #9 **Teacher's Guide:** DI 642; OEA 645
ASSESSMENT ANCHOR **M8.E.4 Develop and/or evaluate inferences and predictions or draw conclusions based on data or data displays.**	
M8.E.4.1 Draw conclusions, make inferences and/or evaluate hypotheses based on statistical and data displays. ***Reference: 2.6.8.C, 2.7.8.E***	
M8.E.4.1.1 Fit a line to a scatter plot and/or describe any correlation between the two variables (positive, negative, strong, weak or none).	**Student Edition:** 40-44, 409-413 *Graphing Calculator Investigation* 45-46 **Teacher's Guide:** DI 412; OEA 44, 413
M8.E.4.1.2 Make predictions based on survey results or graphs (bar, line, circle, scatterplots, etc.).	**Student Edition:** 40-44, 409-413, 606-611, 617-621, 623-628, 630-633 *Algebra Activity* 39 *Graphing Calculator Investigation* 45-46, 622, 629 *Prerequisite Skills* 722-723 **Teacher's Guide:** DI 619, 632; OEA 44, 611, 621, 628