# WYOMING
# Mathematics Content and Performance Standards – Grade 8
# *Pre-Algebra* © 2005

| BENCHMARKS | PAGE REFERENCES |
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| **1. NUMBER OPERATIONS AND CONCEPTS**<br>**Students use numbers, number sense, and number relationships in a problem-solving situation.** | |
| 1. Students represent and apply numbers in a variety of equivalent forms (such as changing from percent to decimal to fraction, etc.) and in a problem-solving context:<br>● prime factors, factors, and multiples;<br>● rational numbers and proportions; and<br>● square roots and powers. | SE: 148-152, 153-157, 169-173, 200-204, 205-209, 270-274, 281-285, 436-440<br>*Algebra Activity* 158<br>*Reading Mathematics* 174 |
| 2. Students extend understanding and use of basic arithmetic operations on rational numbers.<br>● Simplify numerical expressions using the order of operations;<br>● Order rational numbers expressed in a variety of forms | SE: 12-16, 202, 203 #31-#47, 210-214, 215-219, 220-224, 228, 229 #44-#55, 232-236<br>*Study Guide and Review* 48 |
| 3. Students explain their choice of estimation and problem-solving strategies and justify results of solutions in problem-solving situations involving rational numbers. | SE: 6-10, 293-297, 302 #46-#48<br>*Practice Quiz 2* 308<br>*Study Guide and Review* 319<br>TWE: A 10<br>DI 294 |
| 4. Students understand properties of operations with rational numbers. | SE: 64-68, 70-74, 75-79, 80-84, 210-214, 215-219, 220-224, 232-236<br>*Algebra Activity* 62-63 |
| **2. GEOMETRY**<br>**Students apply geometric concepts, properties, and relationships in a problem-solving situation.** | |
| 1. Students classify and describe one-, two-, and three-dimensional geometric objects, including:<br>● lines, rays, segments, and angles;<br>● parallel and perpendicular relationships;<br>● circles and spheres;<br>● regular polygon types;<br>● right prisms, cylinders, cones, and pyramids. | SE: 449-450, 454-456, 492-495, 513-517, 527-531, 556-561<br>*Reading Mathematics* 526<br>TWE: DI 449<br>ICE 454, 514 |

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| 2. Students make conjectures about geometric objects based on knowledge of geometric transformations, congruence, and similarity. | SE: 500, 584<br>*Algebra Activity* 512<br>*Geometry Activity* 583 |
| 3. Students use geometric formulas including the Pythagorean Theorem. | SE: 460-464, 466-469, 520-525, 563-567, 568-572, 573-577, 578-582<br>*Algebra Activity* 458-459<br>*Geometry Activity* 562 |
| 4. Students communicate the reasoning used in identifying geometric relationships in problem-solving situations appropriate to grade level. | SE: 503 #16-#17, 504 #29, 516 #22, 524 #24-#25, 525 #29, 536 #24-#25, 541 #5-#6, 542 #19-#20 |
| 5. Students represent geometric figures using a rectangular coordinate plane. | SE: 38 #49, 88 #41-#42, #45-#48, 466-470, 475 #22, 506-511<br>*Algebra Activity* 512<br>*Standardized Test Practice* 551 #16, #20<br>TWE: ICE 467 |
| **3. MEASUREMENT**<br>**Students use a variety of tools and techniques of measurement in a problem-solving situation.** | |
| 1. Students apply estimation and measurement of weight/mass to content problems and convert within U.S. customary and within metric units (mg, g, kg). | SE: 168 #78, #81, 213 #35, 263 #6, #15<br>*Prerequisite Skills* 718-719, 720-721 |
| 2. Students apply estimation and measurement of capacity/volume to content problems and convert within metric units (ml, l). | SE: 263 #14, 563-567, 568-572<br>*Geometry Activity* 562<br>*Prerequisite Skills* 718-719<br>*Study Guide and Review* 596<br>TWE: A 572<br>DI 570<br>ICE 564 |
| 3. Students select and use the appropriate methods, tools, and units to solve problems involving angle measure, perimeter, circumference, area (including circles), and volume of rectangular solids. | SE: 132-136, 447-451, 453-457, 520-525, 533-538, 539-543, 563-567, 568-572<br>*Algebra Activity* 518-519<br>*Spreadsheet Investigation* 137 |
| **4. ALGEBRA**<br>**Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation.** | |
| 1. Students translate word phrases, which involve the four basic operations to mathematical expressions. | SE: 13-15, 18-21, 32 #63-#64, 51 #6-#8<br>*Reading Mathematics* 11, 125<br>TWE: ICE 13, 18 |
| 2. Students solve one- and two-step linear equations each with an integer coefficient and integer solutions. | SE: 110-114, 115-119, 120-124, 126-130<br>*Algebra Activity* 108-109<br>TWE: A 119<br>DI 113, 124<br>ICE 111, 116 |

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| 3. Students evaluate algebraic expressions and formulas given integer values for variables. | SE: 17-21, 27 #52-#54, 131-135<br>*Spreadsheet Investigation* 22<br>*Study Guide and Review* 48 #17-#22<br>TWE: A 21<br>ICE 18, 132 |
| 4. Using simple linear equations, students create a table, and graph the solutions on the coordinate system. | SE: 377 Example 3, 378 #8-#10, #30-#41<br>*Practice Quiz 1* 397 #3-#4<br>*Study Guide and Review* 425 #15-#22<br>TWE: ICE 376 |
| **5. DATA ANALYSIS AND PROBABILITY**<br>**Students use data analysis and probability to analyze given situations and the results of experiments.** | |
| 1. Students systematically collect, organize, describe, analyze, and represent data using tables, charts, diagrams, and graphs. | SE: 40-44, 606-611, 617-621, 623-628, 630-633<br>*Algebra Activity* 39, 309, 409-413<br>*Graphing Calculator Investigation* 45-46, 629 |
| 2. Students calculate mean, median, mode, and range for data sets and use in a real-world setting appropriate to grade level. | SE: 82, 238-242, 248 #50-#53, 252 #40-#41, 611 #44-#47, 612-616<br>*Algebra Activity* 237<br>*Graphing Calculator Investigation* 243<br>TWE: A 242<br>ICE 239 |
| 3. Students predict, compare, and calculate probable outcomes of experiments or simulations. | SE: 310-314, 635-639, 641-645<br>*Algebra Activity* 180, 640, 656-657<br>*Graphing Calculator Investigation* 315<br>*Study Guide and Review* 320 #63-#68<br>TWE: DI 636 |
| 4. Students communicate about the likelihood of events using concepts from probability such as impossible, equally likely and certain appropriate to grade level. | SE: 310-314, 646-649, 650-655<br>*Algebra Activity* 640<br>*Graphing Calculator Investigation* 315<br>*Study Guide and Review* 662<br>TWE: A 314<br>DI 647<br>ICE 651 |

## Codes Used for TWE Pages

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| A | Assess |
| DI | Differentiated Instruction |
| ICE | In-Class Examples |