

**GLENCOE CORRELATION**  
**ADVANCED MATHEMATICAL CONCEPTS**  
**PRECALCULUS WITH APPLICATIONS © 2001**  
**MONTANA**  
Standards for Mathematics  
Upon Graduation—End of Grade 12

STANDARDS	PAGE REFERENCES
<b>Content Standard 1 - Students engage in the mathematical processes of problem solving and reasoning, estimation, communication, connections and applications, and using appropriate technology.</b>	
1. recognize and formulate problems from situations within and outside mathematics and apply solution strategies to those problems.	SE: 5, 40-41, 79, 82, 260-261, 292-293, 354, 508 TWE: A 332, 711
2. select, apply, and evaluate appropriate estimation strategies throughout the problem-solving process.	SE: 194 #12, 272 #2, 286, 299-301, 307-308, 495, 515-516, 713, 734-735 TWE: TT 727
3. formulate definitions, make and justify inferences, express generalizations, and communicate mathematical ideas and relationships.	SE: <i>Check for Understanding</i> 35, 142, 296, 363, 433-434, 467, 604-605 <i>Critical Thinking</i> 144 #39, 606 #39 TWE: ML 580
4. apply and translate among different representations of the same problem situation or of the same mathematical concept. Model connections between problem situations that arise in disciplines other than mathematics.	SE: 101, 154-155, 181, 292-293, 314, 388-389, 440, 530, 646-647 TWE: A 732
5. select and use appropriate technology to enhance mathematical understanding. Appropriate technology may include, but is not limited to, paper and pencil, calculator, computer, and data collection devices.	SE: 40-41, 99, 181 <i>Graphing Calculator Exploration</i> 87, 284, 369, 592, 738-739, 877 TWE: GE 285
<b>Content Standard 2 - Students demonstrate understanding of and an ability to use numbers and operations.</b>	
1. use and understand the real number system, its operations, notations, and the various subsystems.	SE: 8, 206, 421, 556, 665, 705, 738 <i>Graphing Calculator Investigation</i> 86, 592 TWE: ML 580
2. use definitions and basic operations of the complex number system.	SE: 205-207, 580-585, 586-591, 593-597, 599-606, 609-610, 810-811 <i>Graphing Calculator Exploration</i> 592 TWE: A 598
<b>Content Standard 3 - Students use algebraic concepts, processes, and language to model and solve a variety of real-world and mathematical problems.</b>	
1. use algebra to represent patterns of change.	SE: 28-29, 759-765, 766-773, 774-783, 830, A48, A49 TWE: IE 28
2. use basic operations with algebraic expressions.	SE: 13-19, 58, 124, A26 TWE: MC 20
3. solve algebraic equations and inequalities: linear, quadratic, exponential, logarithmic, and power.	SE: 213-221, 268, 704-711, 718-725, 728-732, 733-737, 751, 752 TWE: MC 740

STANDARDS	PAGE REFERENCES
4. solve systems of algebraic equations and inequalities, including use of matrices.	SE: 67-72, 73-77, 78-86, 100-104, 107-111, 120, 122 TWE: MC 112
5. use algebraic models to solve mathematical and real-world problems.	SE: 21, 28-29, 33, 39, 40-41, 69-70, 75-76, 82, 112-118 TWE: A 105
<b>Content Standard 4 - Students demonstrate understanding of shape and an ability to use geometry.</b>	
1. construct, interpret, and draw three-dimensional objects.	SE: 192-193, 210 #14, 535-542, 546, A41 TWE: A 542
2. classify figures in terms of congruence and similarity and apply these relationships.	SE: 88-95, 121, A28 TWE: A 96 MC 98
3. translate between synthetic and coordinate representations.	SE: 88-95, 121, A28 TWE: A 96 MC 98
4. deduce properties of figures using transformations, coordinates, and vectors in problem solving.	SE: 88-95, 121, 485-492, 500-504, A28 TWE: A 96 MC 98, 493, 505
5. apply trigonometric ratios (sine, cosine and tangent) to problem situations involving triangles.	SE: 284-290, 299-303, 305-312, 336, 337, 338, A34 TWE: A 304 MC 291
<b>Content Standard 5 - Students demonstrate understanding of measurable attributes and an ability to use measurement processes.</b>	
1. apply concepts of indirect measurements (e.g., using similar triangles to calculate a distance).	SE: 299-304, 305-311, 313-318, 320-326, 327-332, 339, A37 <i>Graphing Calculator Exploration 333-334</i> TWE: A 312
2. use dimensional analysis to check reasonableness of procedures.	SE: 353-354, 414, A36 TWE: IE 353, 354 MC 359
3. investigate systems of derived measures (e.g., km/sec, g/cm <sup>3</sup> ).	SE: 353-357, 414, A36 TWE: IE 353, 354 MC 359
4. apply the appropriate concepts of estimates in measurement, error in measurement, tolerance, and precision.	SE: 299-304, 305-311, 313-318, 320-326, 327-332, 339, A37 TWE: A 312
<b>Content Standard 6 - The students demonstrate understanding of an ability to use data analysis, probability, and statistics.</b>	
1. use curve fitting to make predictions from data.	SE: 38-44, 60, 377 #71, 741-747 TWE: MC 45
2. apply measures of central tendency and demonstrate understanding of the concepts of variability and correlation.	SE: 38-44, 60, 897-907, 908-917, 934, 935, A27, A53, A54 TWE: MC 45
3. select an appropriate sampling method for a given statistical analysis.	SE: 927-932, 936, A54 TWE: AN 929 ML 927

STANDARDS	PAGE REFERENCES
4. use experimental probability, theoretical probability, and simulation methods to represent and solve problems, including expected values.	SE: 716 #15, 852-858, 859-867, 868-874, 875-880, 883, 884, 885 TWE: MC 889
5. design a statistical experiment to study a problem and communicate the outcomes.	SE: 927-932, 936, A54 TWE: AN 929 ML 927
6. describe, in general terms, the normal curve and use its properties to answer questions about sets of data that are assumed to be normally distributed.	SE: 918-925, 935, A54 <i>Graphing Calculator Exploration</i> 926 TWE: MC 927
<b>Content Standard 7 - Students demonstrate understanding of and an ability to use patterns, relations and functions.</b>	
1. describe functions and their inverses using graphical, numerical, physical, algebraic, and verbal mathematical models or representations.	SE: 5-11, 38-44, 45-51, 58, 60, 152-158, 159-168, 198, 199 TWE: A 12
2. analyze the graphs of the families of polynomial, rational, power, exponential, logarithmic, and periodic functions.	SE: 137-145, 198, A30 <i>Critical Thinking</i> 629 #45 <i>Graphing Calculator Exploration</i> 26, 641 TWE: MC 146
3. analyze the effects of parameter changes on the graphs of functions and relations, including translations.	SE: 137-145, 198, A30 <i>Critical Thinking</i> 629 #45 <i>Graphing Calculator Exploration</i> 26, 641 TWE: MC 146
4. model real-world phenomena with a variety of functions.	SE: 27-31, 38-44, 45-51, 60, 61, 154-158, 162-168 TWE: IE 162
5. use graphing for parametric equations, three-dimensional equations, and recursive relations.	SE: 520-525, 527-533, 546, 662-669, 690, A41 <i>Graphing Calculator Exploration</i> 526 TWE: MC 535, 670

### Codes Used for TWE Pages

A	Assess
AN	Addressing Individual Needs
GE	Graphing Calculator Exploration
IE	In-Class Examples
MC	5-Minute Check
ML	Motivating the Lesson
TT	Teaching Tip