

ALGEBRA 2, 3RD ED.

STANDARD LESSON PLAN OVERVIEW

This Standard Lesson Plan allocates 90 days for each semester.

Test Packet, supplementary material to the *Student Text* and *Teacher's Edition*

Teacher's Toolkit CD, included in the *Teacher's Edition*

Student Activities, included on the *Teacher's Toolkit CD*

*covered in the *Teacher's Edition* or *TTK CD: Student Activities*

Day	Topic	Pages	Support Materials	Bible Integration
Chapter 1: Basic Algebra				
1	Introduction	vi–1	Appendix D, Dominion Modeling Bible Integration: What Is the Dominion Mandate?	Biblical Worldview Connection; predicting disease to help relieve human suffering providing for the needs of others managing creation*
2	1.1 Real Numbers	2–6	<i>TTK CD: Visuals</i>	successful living by depending on the foundation of Christ God's creation and man created in His image* understanding and declaring God's wondrous works*
3	1.2 Real Number Operations	7–11	Quiz 1 (1.1)	
4	1.3 Simplifying Algebraic Expressions Algebra Around the World—Ancient Numeration	12–17	Graphing Calculator: Evaluating Expressions	the Lord blessed Daniel and his friends as they purposed to put Him first God multiplies blessings as Christians develop godly character*
5	1.4 Solving Equations	18–22	Quiz 2 (1.2–1.3)	making growth a daily goal in one's Christian walk
6	1.5 Applying Equations	23–29		applying godly wisdom to solve the problems of life problem-solving ways of a godly person*
7				
8	1.6 Solving Inequalities	29–33	Appendix F, Study Skills (Before Class) Quiz 3 (1.4–1.5)	using God-given abilities to glorify Him
9	1.7 Compound Inequalities	34–38	Math History: Richard Dedekind <i>TTK CD: Visuals</i>	
10	1.8 Absolute Value Equations	38–43	Quiz 4 (1.6–1.7) Graphing Calculator: Absolute Value—Numbers and Equations	
11	Programming Project Technology Corner	43–44		

12	1.9 Absolute Value Inequalities	45–49	Practice with Linear Equations and Inequalities Enrichment: Graphs of Absolute Value Inequalities	
13	Dominion Modeling	50	Quiz 5 (1.8–1.9)	God’s command to have dominion over the earth*
14	Chapter 1 Review College Entrance Test Preparation	51–53	Mathardy: Ch. 1	
15	Chapter 1 Test			

Chapter 2: Linear Relations				
16	2.1 Relations and Functions Math in History—Hypatia	54–62	Bible Integration: Bible, Math, and Logic TTK CD: Visuals	Biblical Worldview Connection; using mathematics to help meet human needs and manage natural resources diligently pursuing God-given gifts* the use of logic by Christ and Paul*
17	2.2 Graphs of Linear Equations	63–68	Quiz 1 (2.1) Graphing Calculator: Graphing Linear Functions from Equations TTK CD: Visuals	speaking truth* abstaining from deceiving others*
18	2.3 Writing Linear Equations	69–74	Appendix G, Excerpts from <i>Bible Numerics</i> Practice: Linear Functions Bible Integration: Reflecting on Allis’s Paper “Excerpts from <i>Bible Numerics</i> ” TTK CD: Visuals and Resources	diligent planning
19				
20	2.4 Modeling Linear Data Technology Corner	74–81	Appendix E, Linear Regression on the TI-841 Quiz 2 (2.2–2.3) Graphing Calculator: Linear Regressions TTK CD: Resources	the world’s hatred for Christ* the broad way to destruction* God’s command and help for evangelism*
21				
22	2.5 Special Functions	82–87	TTK CD: Resources	wise men lay up knowledge
23	2.6 Graphing Inequalities	88–92	Appendix F, Study Skills (During Class) Quiz 3 (2.4–2.5)	
24	2.7 Distances and Midpoints	92–97	TTK CD: Visuals and Resources	spiritual battle*
25	Dominion Modeling	98–99	Quiz 4 (2.6–2.7) TTK CD: Resources	considering biblical history in viewing Earth’s climate valuing efforts to model Earth’s climate
26	Chapter 2 Review			

	College Entrance Test Preparation			
27	Chapter 2 Test			

Chapter 3: Solving Systems				
28	3.1 Solving Systems Graphically Technology Corner	104–12	Appendix H, Modern Mathematics in a Christian College Appendix I, Reflections of God in the Structure of the Physical Universe Bible Integration: Reflecting on Zwier's Paper Enrichment: A "Proof" That $1 = 0$	Biblical Worldview Connection; assisting others and not benefiting from their misfortunes constructing a correct worldview with God's Word* the ungodly pervert God's truth*
29	3.2 Solving Systems Algebraically	112–17	Practice with Systems of Equations <i>TTK CD: Visuals</i>	
30				
31	3.3 Solving Problems with Systems	117–22	Quiz 1 (3.1–3.2)	Scripture guides our hearts to godly thinking and reasoning
32	Algebra Around the World—Greek Math 3.4 Graphing Systems of Inequalities	123–27		
33	3.5 Linear Programming	128–33	Quiz 2 (3.3–3.4) Bible Integration: Bible, Math, and Business <i>TTK CD: Visuals</i>	using business profits to benefit employees, customers, and others laboring for the Lord* God's commands about work* Abraham's business example*
34	3.6 Linear Systems in Three Variables	134–39		
35	Dominion Modeling	140	Quiz 3 (3.5–3.6)	seeking wise counsel being patient not withholding good from them to whom it is due
36	Chapter 3 Review College Entrance Test Preparation	141–43	<i>Mathardy: Ch. 3</i>	
37	Chapter 3 Test			

Chapter 4: Matrices				
38	4.1 Organizing Data with Matrices	144–50	Bible Integration: Bible, Math, and Grammar <i>TTK CD: Visuals</i>	Biblical Worldview Connection; communicating truth because our God is a God of truth rejoicing in the truth* grammar aids in understanding*
39	Math in History—	150–56	Graphing Calculator: Matrix	God and His power clearly revealed by

	Johannes Kepler 4.2 Elementary Matrix Operations		Addition and Subtraction	creation*
40	4.3 Multiplying Matrices	156–61	Quiz 1 (4.1–4.2) Practice: Matrix Products TTK CD: Visuals and Resources	
41	4.4 Determinants and Cramer's Rule	162–67	Graphing Calculator: Evaluating the Determinant of a Matrix Graphing Calculator: Solving Systems of Equations by Cramer's Rule	
42	4.3–4.4 review		Quiz 2 (4.3–4.4)	
43	4.5 Inverse Matrices and Solving Systems Technology Corner	168–73	Graphing Calculator: Inverse of a Matrix TTK CD: Visuals	
44	4.6 Matrices and Transformations	173–79		
45	Dominion Modeling	180–81	Quiz 3 (4.5–4.6)	communicating honestly
46	Chapter 4 Review College Entrance Test Preparation	182–85	Mathardy: Ch. 4	
47	Chapter 4 Test			

Chapter 5: Quadratic Equations				
48	5.1 Multiplying Polynomials	186–92	Bible Integration: Bible, Math, and Science	Biblical Worldview Connection; exhibiting Christlike concern for others by modeling motion for people's protection God's wisdom and power* the misuse of science*
49	5.2 Factoring Quadratic Polynomials	192–96	Practice: Factoring	
50	5.3 Solving by Factoring	197–200	Math History: Niels Abel	Adam's dominion responsibility praising God for how we are made*
51	5.1–5.3 review		Quiz 1 (5.1–5.3)	
52	5.4 Solving by Taking Roots	201–5		safety in the Lord*
53	5.5 Complex Numbers	205–9	Practice: Complex Numbers	communicating truth
54	5.4–5.5 review		Quiz 2 (5.4–5.5)	
55	5.6 Solving by Completing the Square	209–13		effort and labor that are not in vain*
56	5.7 The Quadratic	213–17	Graphing Calculator:	being honest before God and man*

	Formula		Solving Quadratic Equations Graphically	walking worthy of the Lord*
57	5.6–5.7 review		Quiz 3 (5.6–5.7)	
58	5.8 Solutions to Quadratic Equations Technology Corner	217–22	Appendix J, Complex Numbers: The Story of $\sqrt{-1}$ Practice: Quadratic Equations	discerning between right and wrong salvation only through Christ*
59	5.9 Solving Quadratic Inequalities	223–28	Practice: Quadratic Inequalities	
60	Algebra Around the World—Arabic Math Dominion Modeling	229–30	Quiz 4 (5.8–5.9) TTK CD: Resources	submitting to authorities who are ordained by God to promote good and to punish evildoers
61	Chapter 5 Review College Entrance Test Preparation	231–33	Mathardy: Ch. 5	
62	Chapter 5 Test			

Chapter 6: Polynomial Functions				
63	6.1 Quadratic Functions	234–40	Math History: Jean d’Alembert Graphing Calculator: Families of Quadratic Functions	Biblical Worldview Connection: predicting population growth as a means to carry out God’s commands the Fall’s effect on God’s creation* God sustains us and meets our needs* seeking righteousness*
64	6.2 Quadratic Functions: $f(x) = a(x - h)^2 + k$	241–46	Appendix F, Study Skills (Practice Time) Graphing Calculator: Locating the Vertex of a Parabola—Maximum or Minimum	
65	6.3 Zeros and Inequalities	247–51	Quiz 1 (6.1–6.2) Practice with Quadratic Functions Practice with Systems of Inequalities	
66	6.4 Modeling with Quadratic Functions	251–58	Enrichment: Graphing Parabolas in Complex Space TTK CD: Resources	applying math and technology when possible to use God-provided resources efficiently God supplies all our needs*
67	Technology Corner 6.3–6.4 Review	255	Quiz 2 (6.3–6.4)	
68	6.5 Dividing Polynomials	258–62		
69	6.6 Factoring Polynomials	262–66	Graphing Calculator: Finding Zeros of Polynomial Functions	
70	6.5–6.6 review		Quiz 3 (6.5–6.6)	

71	6.7 Polynomial Equations Math in History— François Viète	266–71	Enrichment: Modeling Functions	being diligent and persevering*
72	6.8 Graphing Polynomial Functions	272–79	Practice with Polynomial Functions and Inequalities <i>TTK CD: Resources</i>	
73	Dominion Modeling	280–81	Quiz 4 (6.7–6.8)	demonstrating compassion to those in need our dominion responsibilities and God’s provisional promises*
74	Chapter 6 Review College Entrance Test Preparation	282–85	Mathardy: Ch. 6	
75	Chapter 6 Test			

Chapter 7: Radicals and Exponents				
76	7.1 Simplifying Radicals Technology Corner	286–92, 309	Bible Integration: Bible, Math, and History	Biblical Worldview Connection; recognizing God’s goodness through modeling pendulum motion making knowledge easy through understanding* historical examples for our admonition* God precedes everything*
77	7.2 Rational Exponents	292–96	Remediation: The Marvel of Compound Interest	
78	7.3 Sums and Differences	296–300	Appendix F, Study Skills (Test Preparation) Quiz 1 (7.1–7.2)	
79	7.4 Products	300–303		
80	Algebra Around the World— Italian Math 7.5 Quotients	304–8	Quiz 2 (7.3–7.4) Practice with Radical and Exponential Expressions	
81	7.6 Radical and Exponential Equations	309–14	Math History: William Rowan Hamilton	studying the Bible to prevent swaying from God’s truth*
82	7.5–7.6 review		Quiz 3 (7.5–7.6)	
83	7.7 More Radical Equations	314–18	Practice with Radical and Exponential Equations	
84	7.8 Radical Functions	318–23		using radicals and exponents in modeling God’s creation
85	Dominion Modeling	324–25	Quiz 4 (7.7–7.8) <i>TTK CD: Resources</i>	God created the earth for our use and enjoyment God establishes His faithfulness in the heavens the evidence of creation condemns those who reject the Creator*
86	Chapter 7 Review	326–28	Mathardy: Ch. 7	

	College Entrance Test Preparation			
87	Chapter 7 Test			
88	Review for Final Exam			
89	Review for Final Exam			
90	Final Exam (Chapters 1–7)			

Chapter 8: Exponential and Logarithmic Functions				
91	8.1 Function Operations	330–37	Bible Integration: Bible, Math, and Literature TTK CD: Visuals	Biblical Worldview Connection; modeling sound to help protect the hearing of business employees receiving the Word eagerly and studying it daily* separation from unbelievers and their gods*
92	8.2 Inverse Relations and Functions	338–42	Math History: Gerolamo Cardano	
93	Technology Corner	343	Quiz 1 (8.1–8.2)	
94	8.3 Exponential Functions	344–48	Practice with Linear and Special Relations	
95	8.4 Using Exponential Functions	349–54		
96	8.5 Logarithmic Functions	354–59	Quiz 2 (8.3–8.4) Graphing Calculator: Graphing Exponential and Logarithmic Functions	
97	8.6 Properties of Logarithms	359–63		preaching the gospel to all people*
98	8.7 Exponential and Logarithmic Equations	364–69	Quiz 3 (8.5–8.6)	
99	Math in History—John Napier 8.8 Natural Logarithms	370–76	Practice with Logarithms	contrasting corruptible (decay) and incorruptible*
100	Dominion Modeling	377–78	Quiz 4 (8.7–8.8) Enrichment: Modeling Sound TTK CD: Resources	our bodies belong to God caring for the needs of others
101	Chapter 8 Review College Entrance Test Preparation	379–81	Mathardy: Ch. 8	
102	Chapter 8 Test			

Chapter 9: Rational Expressions and Equations				
103	9.1 Simplifying Rational Expressions	382–87		Biblical Worldview Connection; revealing God’s image through creating beautiful music

104	9.2 Multiplying and Dividing Rational Expressions	388–91		doing all to the glory of God*
105	9.3 Adding and Subtracting Rational Expressions	392–97	Quiz 1 (9.1–9.2) Practice with Rational Expressions	
106	9.4 Solving Rational Equations	398–403	Practice with Rational Equations TTK CD: Resources	working honorably for the Lord*
107	9.3–9.4 review		Quiz 2 (9.3–9.4)	
108	9.5 Graphing Reciprocal Functions	405–11		
109	9.6 Graphing Rational Functions	411–17	Practice with Rational Functions Graphing Calculator: Graphing Rational Functions	
110	Technology Corner 9.5–9.6 review	418	Quiz 3 (9.5–9.6) Enrichment: Pushing Rational Functions to Their Limits	
111	9.7 Variations	419–24		
112	Algebra Around the World— German Math Dominion Modeling	404, 425–26	Quiz 4 (9.7)	God’s will* biblical connections to music biblical music, both vocal and instrumental* created for God’s glory*
113	Chapter 9 Review College Entrance Test Preparation	427–29	Mathardy: Ch. 9	
114	Chapter 9 Test			

Chapter 10: Trigonometry				
115	10.1 Right Triangle Trigonometry	430–37	Bible Integration: Bible, Math, and Geography	Biblical Worldview Connection; understanding and using God-given resources God saw His creation as good* Earth’s geography changed by the Flood*
116	10.2 Solving Right Triangles	438–44	Practice with Triangles and Trigonometry Math History: Hipparchus of Rhodes TTK CD: Visuals	
117	10.3 Trigonometry in the Coordinate Plane	445–49	Quiz 1 (10.1–10.2) TTK CD: Visuals	
118	10.4 Radians and the Unit Circle	450–55	TTK CD: Visuals and Resources	

	Technology Corner			
119	10.3–10.4 review		Quiz 2 (10.3–10.4)	
120	10.5 Graphs of Sine and Cosine Functions Math in History—Leonhard Euler	456–63	Graphing Calculator: Graphing the Sine Function Practice with Trigonometric Functions	Euler’s identity reflects the order and beauty in God’s creation
121	10.6 Graphs of Other Trigonometric Functions	464–69		
122	10.5–10.6 review		Quiz 3 (10.5–10.6)	
123	10.7 Translating Trigonometric Functions	469–74		
124	10.8 Inverse Trigonometric Functions	475–80	Enrichment: Inverse Trigonometric Functions Practice with Inverse Trigonometric Functions	
125	Dominion Modeling	481–82	Quiz 4 (10.7–10.8)	man’s limited ability to model God’s creation
126	Chapter 10 Review College Entrance Test Preparation	483–85	Mathardy: Ch. 10 Cumulative Review	
127	Chapter 10 Test			

Chapter 11: Trigonometric Identities				
128	11.1 Law of Sines	486–92	TTK CD: Visuals	Biblical Worldview Connection; developing models of the earth’s surface to better use and care for the land
129	11.2 Law of Cosines	493–97		
130	Technology Corner 11.1–11.2 review	497	Quiz 1 (11.1–11.2) Enrichment: Other Trigonometric Functions Practice with Trigonometric Problems	
131	11.3 Basic Identities Algebra Around the World—British Math	498–502		
132	11.4 Verifying Identities	503–6		
133	11.5 Sum and Difference Identities	506–11	Quiz 2 (11.3–11.4) Practice with Identities and Equations TTK CD: Visuals	
134				
135	11.6 Trigonometric Equations	511–15	Graphing Calculator: Finding Solutions to	
136				

			Trigonometric Equations	
137	Dominion Modeling	516	Quiz 3 (11.5–11.6)	impacting the lives of others for eternity consideration for others involving landmarks*
138	Chapter 11 Review College Entrance Test Preparation	517–19	Mathardy: Ch. 11 Cumulative Review	
139	Chapter 11 Test			

Chapter 12: Sequences and Series				
140	12.1 Introduction to Sequences Technology Corner	520–27	Math History Timeline	Biblical Worldview Connection; applying scriptural principles in making wise financial decisions
141	12.2 Arithmetic Sequences	528–32		
142	12.1–12.2 review		Quiz 1 (12.1–12.2)	
143	12.3 Geometric Sequences	533–37	Practice with Sequences	
144	12.4 Arithmetic Series and Sigma Notation	538–42	Appendix K, Mathematical Careers	
145	12.3–12.4 review		Quiz 2 (12.3–12.4)	
146	Math in History— Emmy Noether 12.5 Geometric Series	543–48	Practice with Series Enrichment: Repeating Decimals TTK CD: Resources	
147	12.6 Mathematical Induction	549–52	Appendix L, Math and the Bible Bible Integration: Reflecting on Keister’s Paper “Math and the Bible”	arithmetic examples exist in Scripture* mathematical properties and logic in the Bible*
148	12.5–12.6 review		Quiz 3 (12.5–12.6) Enrichment: Area Under a Curve	
149	Dominion Modeling	553–54		biblical principles of finance
150	Chapter 12 Review College Entrance Test Preparation	555–57	Mathardy: Ch. 12 Cumulative Review	
151	Chapter 12 Test			

Chapter 13: Probability and Statistics				
152	13.1 Counting Principles	558–65	Practice with Counting Problems	Biblical Worldview Connection; avoiding unnecessary risks and protecting lives and jobs
153	13.2 Basic Probability	565–71	Enrichment: Experimenting with Theoretical Probabilities TTK CD: Resources	God establishes all things

154	13.1–13.2 review		Quiz 1 (13.1–13.2)	
155	13.3 Compound Events	571–77	Appendix M, Considering Cards Bible Integration: Reflecting on a Biblical View of Gambling TTK CD: Visuals	greed condemned gambling ensnares being controlled by the Holy Spirit casting lots examined in both Old and New Testaments* recognizing that everything belongs to God*
156	13.4 The Binomial Probability Distribution	577–82	Bible Integration: Bible, Math, and Foreign Language	language comes from God* mathematics is helpful in planning for Bible translations; having the Scriptures in hand will help with the spread of the gospel*
157	Algebra Around the World—French Math 13.3–13.4 review	583	Quiz 2 (13.3–13.4)	
158	13.5 Describing Data	584–89	TTK CD: Resources	
159	13.6 Organizing Data Technology Corner	590–96	Enrichment: Simpson’s Paradox—How More Becomes Less TTK CD: Resources	
160	13.5–13.6 review		Quiz 3 (13.5–13.6)	
161	13.7 The Normal Distribution	597–601	Practice with Probability and Statistics TTK CD: Resources	recognizing that many characteristics of creation can be modeled by a normal distribution
162	13.8 Making Inferences	602–7	Graphing Calculator: Calculating Statistical Measures TTK CD: Resources	
163	Dominion Modeling	608–9	Quiz 4 (13.7–13.8) TTK CD: Resources	obeying authorities being concerned for the well-being of others
164	Chapter 13 Review College Entrance Test Preparation	610–13	TTK CD: Resources Mathardy: Ch. 13 Cumulative Review	
165	Chapter 13 Test			

Chapter 14: Conic Sections and Quadratic Systems				
166	14.1 Circles	614–20	Math History: Carl Jacobi Bible Integration: Bible, Math, and Art	Biblical Worldview Connection; modeling mathematically both celestial and terrestrial motion God commanded art to be used in the temple, and mathematics is useful in the creation of art*
167	14.2 Parabolas	622–26	Practice with Circles and Parabolas	
168	Technology Corner Math in History—John Wallis	621, 649	Quiz 1 (14.1–14.2)	

169	14.3 Ellipses	627–33	Handout: Derivation of the Equation of an Ellipse Practice with Ellipses TTK CD: Visuals	
170	14.4 Hyperbolas	633–39	Handout: Derivation of the Equation of a Hyperbola Practice with Hyperbolas TTK CD: Visuals	
171	14.3–14.4 review		Quiz 2 (14.3–14.4)	
172	14.5 Identifying Conics	639–44	Graphing Calculator: Graphing Conic Sections	
173	14.6 Systems with Quadratic Relations	644–48	Graphing Calculator: Solving Quadratic Systems	
174	14.5–14.6 review		Quiz 3 (14.5–14.6)	
175	Dominion Modeling	650–51		the infinite power and wisdom of God revealed from observation of the heavens worshiping the Creator and not the objects of His creation recognizing an individual's value in God's sight
176	Chapter 14 Review College Entrance Test Preparation	652–54	Mathardy: Ch. 14 Cumulative Review	
177	Chapter 14 Test			
178	Review for Final Exam			
179	Review for Final Exam			
180	Final Exam (Chapters 8–14)			