

Beginning Algebra Parts I and II OER Instructors' Guide

Class	MOM Section	Topic	Objectives	Teaching Notes Teach Workbook examples and give in-class practice problems to students using workbook exercises (instructor can always modify number of exercises if necessary, based on level of class)	Suggested Homework
1.	0.1	Integers	Add, subtract, multiply and divide positive and negative numbers	Teach: Workbook examples A, B <ul style="list-style-type: none"> • In-class problems for students: Worksheet: 1-7 Workbook examples C-F <ul style="list-style-type: none"> • In-class problems for students: Worksheet: 8-18 even Workbook examples G, H <ul style="list-style-type: none"> • In-class problems for students: Worksheet: 19-24 	Myopenmath <ul style="list-style-type: none"> • Practice problems
2.	0.2	Fractions	Reduce, add, subtract, multiply, and divide with fractions	Teach: Workbook examples A- C <ul style="list-style-type: none"> • In-class problems for students: Worksheet: 1-7 odd Workbook examples D-G <ul style="list-style-type: none"> • In-class problems for students: Worksheet: 9-17 odd Workbook examples H-K <ul style="list-style-type: none"> • In-class problems for students: Worksheet: 19-25 odd 	Myopenmath <ul style="list-style-type: none"> • Practice problems
3.	0.3	Order of Operations	Evaluate expressions using the order of operations	Teach: Workbook examples A-C <ul style="list-style-type: none"> • In-class problems for students: Worksheet: 1-6 Workbook examples D-E <ul style="list-style-type: none"> • In-class problems for students: Worksheet: 7-15 odd 	Myopenmath <ul style="list-style-type: none"> • Video problems • Practice problems

4.	0.4	Properties of Algebra	Simplify algebraic expressions by substituting given values, distributing, and combining like terms	Teach: Workbook examples A -E Worksheet #6 <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 3, 5, 10 13 & 18	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
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				Workbook examples F Worksheet # 28, 30 <ul style="list-style-type: none"> In-class problems for students: Worksheet: 19-31 odd	
5.	1.1	One-Step Equations	Solve one step linear equations by balancing using inverse operations	Teach: Workbook examples A- F <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1- 15 odd	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
6.	1.2	Two-Step Equations	Solve two-step equations by balancing and using inverse operations	Teach: Workbook examples A- C and worksheet #8 & 10 <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1-9 odd Workbook examples D Worksheet #12, 14 <ul style="list-style-type: none"> In-class problems for students: Worksheet: 11, 13, 15	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems

7.	1.3	General Linear Equations	<p>Solve general linear equations with variables on both sides</p> <p>Use the solution of an equation to classify the equation as either a conditional equation, an identity, or a contradiction</p>	<p>Teach:</p> <p>Workbook examples A, B</p> <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1-7 <p>Workbook examples C, D</p> <ul style="list-style-type: none"> In-class problems for students: Worksheet: 8-10 	<p>Myopenmath</p> <ul style="list-style-type: none"> Video problems Practice problems
8.	1.4	Solving with Fractions	<p>Solve linear equations with rational coefficients by multiplying by the least common denominator to clear the fractions</p>	<p>Teach:</p> <p>Workbook examples A, B, C</p> <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 2, 4, 7, 9, 11 <p>Workbook example D</p>	<p>Myopenmath</p> <ul style="list-style-type: none"> Video problems Practice problems
			denominator to clear the fractions	<ul style="list-style-type: none"> In-class problems for students: Worksheet: 3, 5, 6, 8 	
9.	1.5	Formulas	<p>Solve linear formulas for a specific variable</p>	<p>Teach:</p> <p>Workbook examples A-D, F</p> <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1-9, 11 <p>Workbook example E</p> <ul style="list-style-type: none"> In-class problems for students: Worksheet: 10, 12 	<p>Myopenmath</p> <ul style="list-style-type: none"> Video problems Practice problems

10.	1.8	Application: Number/Geometry	Solve number and geometry problems by creating and solving a linear equation	<p>Teach: Workbook examples A- C & worksheet #8 & 10</p> <ul style="list-style-type: none"> In-class problems for students: <p>Worksheet: 1- 11 odd Workbook examples D-F</p> <ul style="list-style-type: none"> In-class problems for students: <p>Worksheet: 1, 3, 5, and 9</p>	<p>Myopenmath</p> <ul style="list-style-type: none"> Video problems Practice problems
11.	1.9	Other Applications	Set up a linear equation to solve age, commission, sales tax, and discount problems	<p>Teach: Workbook examples A worksheet # 2</p> <ul style="list-style-type: none"> In-class problems for students: <p>Worksheet: 1 Workbook examples B-C worksheet # 4</p> <ul style="list-style-type: none"> In-class problems for students: <p>Worksheet: 3, 5 Workbook examples D-E worksheet # 10, 12</p> <ul style="list-style-type: none"> In-class problems for students: Worksheet: 7, 9, 11 	<p>Myopenmath</p> <ul style="list-style-type: none"> Video problems Practice problems
12.	3.1	Solve and Graph Inequalities	Solve, graph, and give interval notation for the solution to linear inequalities	<p>Teach: Workbook examples A-C</p> <ul style="list-style-type: none"> In-class problems for students: <p>Worksheet: 1,3,7,9 Workbook examples D, F</p>	<p>Myopenmath</p> <ul style="list-style-type: none"> Video problems Practice problems
				<p>Worksheet # 16</p> <ul style="list-style-type: none"> In-class problems for students: <p>Worksheet: 11, 13, 15, 17</p>	

13.	2.1	Points and Lines	Graph points and linear equations by finding and plotting ordered pair solutions using xy coordinates.	Teach: Workbook example A <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 4, 7, 10, 13, 18, 19, 21 Workbook example B, C <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1-9 odd 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
14.	2.2	Slope	Find the slope of a line given a graph or two points	Teach: Workbook example A <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 2 Workbook example B <ul style="list-style-type: none"> In-class problems for students: Worksheet: 4, 5, 6 Workbook example C <ul style="list-style-type: none"> In-class problems for students: Worksheet: 10-14 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
15.	2.3	Slope-Intercept Form	Write the equation of a line using slope intercept form	Teach: Workbook example A <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 2 Workbook examples B, C <ul style="list-style-type: none"> In-class problems for students: Worksheet: 4, 5, 6, 7, 8 Workbook example D <ul style="list-style-type: none"> In-class problems for students: Worksheet: 11-14 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
16.	2.4	Point-Slope Form	Give the equation of a line with a known slope and point	Teach: Workbook example A <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1-5 odd Workbook examples B, C, D <ul style="list-style-type: none"> In-class problems for students: Worksheet: 6-10 even 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems

17.	2.5	Parallel & Perpendicular Lines	Write an equation of a line given a parallel or perpendicular line	Teach: Workbook example A, B <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1-9 odd Workbook examples C, D, E <ul style="list-style-type: none"> In-class problems for students: Worksheet: 13-21 odd 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
18.	4.1	Graphing	Solve systems of equations by graphing and identifying the point of intersection	Teach: Workbook example A, B <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1-3 Workbook examples C-F <ul style="list-style-type: none"> In-class problems for students: Worksheet: 4, 6, 8 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
29.	4.2	Substitution	Solve systems of equations using substitution	Teach: Workbook example A, B <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 3, 4 Workbook examples C <ul style="list-style-type: none"> In-class problems for students: Worksheet: 5, 6 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
20.	4.3	Addition/Elimination	Solve systems of equations using the addition/elimination method	Teach: Workbook example A <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 2 Workbook examples B, C, D <ul style="list-style-type: none"> In-class problems for students: Worksheet: 3, 4, 5, 7 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
21.	4.5	Application: Value Problems	Solve value problems by setting up a system of equations	Teach: Workbook examples A, B <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 2, 3, 5 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems

22.	4.6	Application: Mixture Problems	Solve mixture problems by setting up a system of equations	Teach: Workbook examples A, B <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 2, 3, 4 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
23.	5.1	Exponent Properties	Simplify expressions using the properties of exponents	Teach: Workbook examples A-D <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 3, 5 Workbook examples E-G <ul style="list-style-type: none"> In-class problems for students: Worksheet: 7,9,11 Workbook examples H-K <ul style="list-style-type: none"> In-class problems for students: Worksheet: 13, 15, 17, 20 Workbook examples L,M,O,P <ul style="list-style-type: none"> In-class problems for students: Worksheet: 21,23,24,25 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
24.	5.2	Negative Exponents	Simplify expressions with negative exponents using the properties of exponents	Teach: Workbook examples A-F <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1-7 Workbook examples G, H <ul style="list-style-type: none"> In-class problems for students: Worksheet: 8-15 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
25.	5.3	Scientific Notation	Multiply and divide expressions using scientific notation and exponent properties	Teach: Workbook example A, B, E, F <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1-11 odd Workbook examples I, J <ul style="list-style-type: none"> In-class problems for students: Worksheet: 13, 15 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems

26.	5.4	Introduction to Polynomials	Evaluate, add, and subtract polynomials	Teach: Workbook example A, B, C <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 2 Workbook examples D, E <ul style="list-style-type: none"> In-class problems for students: Worksheet: 3, 4, 6, 7, 8 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
27.	5.5	Multiply Polynomials	Multiply polynomials	Teach: Workbook example A <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 3 Workbook examples B, C <ul style="list-style-type: none"> In-class problems for students: Worksheet 5, 7, 8 Workbook examples E	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
				<ul style="list-style-type: none"> In-class problems for students: Worksheet: 9, 11, 13, 14, 16 	
28.	5.6	Multiply Special Products	Recognize and use special product rules of a sum and difference and perfect squares to multiply polynomials	Teach: Workbook examples A, C <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1-7 odd Workbook examples D, F, G <ul style="list-style-type: none"> In-class problems for students: Worksheet 9-17 odd 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
29.	5.7	Divide Polynomials	Divide polynomials using long division	Teach: Workbook examples A, C, E <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 4, 5 Workbook examples F, G, H <ul style="list-style-type: none"> In-class problems for students: Worksheet: 7, 9, 11, 13 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems

30.	6.1	Factoring-Greatest Common Factor	Find the Greatest Common Factor of a list of numbers & variable terms.	Teach: Workbook examples A, C, D, E,F ● In-class problems for students: Worksheet: 7, 9, 11, 13, 15	Myopenmath ● Video problems ● Practice problems
31.	6.2	Factoring-Grouping	Factor polynomials with four terms using grouping.	Teach: Workbook examples A, B,C ● In-class problems for students: Worksheet: 1, 3, 5	Myopenmath ● Video problems ● Practice problems
32.	6.3	Factoring Trinomials where $a=1$	Factor trinomials with coefficient $a=1$ Factor trinomials after factoring out the GCF.	Teach: Workbook examples A, B,C, D ● In-class problems for students: Worksheet: 1, 3, 5, 7	Myopenmath ● Video problems ● Practice problems
33.	6.4	Factoring-Trinomials where $a \neq 1$	Factor trinomials with coefficient $a \neq 1$ Factor trinomials after factoring out the GCF	Teach: Workbook examples A, B, C ● In-class problems for students: Worksheet: 1, 3, 5, 7 Workbook examples D,E ● In-class problems for students: Worksheet: 19, 20	Myopenmath ● Video problems ● Practice problems

34.	6.5	Factoring Special Products	Identify and factor special products including a difference of squares, perfect squares, and sum and difference of cubes. Factor trinomials after factoring out the GCF.	Teach: Workbook examples A, B, C, D, E (Factoring the Difference of Two squares) <ul style="list-style-type: none"> In-class problems for students: Worksheet: 1, 3, 5 Workbook examples A, B, C (Perfect squares) • In-class problems for students: Worksheet: 7, 8, 10 Workbook examples A, B, C, D (Factor a Sum/difference of cubes) <ul style="list-style-type: none"> In-class problems for students: Worksheet: 14, 15, 16 	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
35.	6.6	Factoring Strategy	Identify and use the correct method to factor various polynomials	Teach: Workbook examples A, B, C, D • In-class problems for students: Worksheet: 1, 3, 5, 20, 21	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
36.	6.7	Solve by Factoring	Solve quadratic equation by factoring and using the zero-product rule.	Teach: Workbook examples A, B, C, D • In-class problems for students: Worksheet: 1, 3, 5, 7, 9, 11	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems
37.	7.1	Reduce Rational Expressions	Reduce rational expressions by removing common factors. Determine domain. Evaluate rationals	Teach: Workbook examples A, B, C, D • In-class problems for students: Worksheet: 1, 3, 5, 7, 14, 20	Myopenmath <ul style="list-style-type: none"> Video problems Practice problems

38.	7.2	Multiply and Divide Rational Expressions	Combine rational expressions with multiplication and division	Teach: Workbook examples A, B,C, D • In-class problems for students: Worksheet: 1, 2, 5, 10, 20	Myopenmath <ul style="list-style-type: none"> • Video problems • Practice problems
39.	7.3	Least Common Denominator	Find the LCD by factoring	Teach: Workbook examples A, B, C, D • In-class problems for students: Worksheet: 1, 3, 5, 8, 14, 16, 19	Myopenmath <ul style="list-style-type: none"> • Video problems • Practice problems
40.	7.4	Add and Subtract Rational Expressions	Combine rational expressions using the LCD for addition and subtraction	Teach: Workbook examples A, B, C, D • In-class problems for students: Worksheet: 1, 3, 5, 7, 9, 11	Myopenmath <ul style="list-style-type: none"> • Video problems • Practice problems
41.	7.5	Complex Fractions	Simplify complex fractions by multiplying by the LCD to every term	Teach: Workbook examples A, B, C, D • In-class problems for students: Worksheet: 1, 3, 5, 7, 9, 11	Myopenmath <ul style="list-style-type: none"> • Video problems • Practice problems
42.	7.7	Solving Rational Equations	Solve rational equations by multiplying by the LCD	Teach: Workbook examples A, B, C, D • In-class problems for students: Worksheet: 1, 4, 7, 13, 17, 21	Myopenmath <ul style="list-style-type: none"> • Video problems • Practice problems
43.	8.1, 8.2	Square Roots and Higher Roots	Simplify radical expressions	Teach: Workbook examples A-F • In-class problems for students: Worksheet: 2, 3, 4, 5 Workbook examples G, H • In-class problems for students: Worksheet: 7, 8, 9	Myopenmath <ul style="list-style-type: none"> • Video problems • Practice problems

44.	8.3	Adding Radicals	Add and Subtract radical expressions with and without variables	Teach: Workbook examples B, D, E ● In-class problems for students: Worksheet: 1, 3 Workbook examples F, G, H ● In-class problems for students: Worksheet: 4, 6, 8, 11	Myopenmath ● Video problems ● Practice problems
45.	8.4	Multiplying Radicals	Multiply radical expressions with and without variables	Teach: Workbook examples A, B,C ● In-class problems for students: Worksheet: 2, 4, 5, 7 Workbook examples F, G, H ● In-class problems for students: Worksheet: 8, 9, 11, 13	Myopenmath ● Video problems ● Practice problems
46.	8.5	Dividing Radicals, Rationalizing Denominator	Divide radical expressions with and without variables Divide by monomial (one term) Divide by binomial (two terms) Rationalize denominator	Teach: Workbook examples A, C, D (Simplify radicals) ● In-class problems for students: Worksheet: 2, 3, 5 Workbook examples E, F (Rationalize denominator -monomial) ● In-class problems for students: Worksheet: 7, 8, 9 Workbook examples G (Rationalize denominator -binomial) ● In-class problems for students: Worksheet: 10, 12, 14	Myopenmath ● Video problems ● Practice problems
47.	9.1	Quadratics - Solving with Radicals	Solve equations with radicals and check for extraneous solutions.	Teach: Workbook examples A, D,E,F ● In-class problems for students: Worksheet: 1,3,5,15	Myopenmath ● Video problems ● Practice problems

48.	9.2	Solving with Exponents using the Square Root Property	Solve quadratic equations of the form $x^2 = k$ using the Square Root Property	Teach: Workbook examples A, B, C, D • In-class problems for students: Worksheet: 1, 2 Workbook examples D, E	Myopenmath <ul style="list-style-type: none"> • Video problems • Practice problems
			Solve quadratic equations of the form $a(x-h)^2=k$ using the Square Root Property	<ul style="list-style-type: none"> • In-class problems for students: Worksheet: 3, 6, 8, 9	
49.	9.3	Completing the Square	Solve quadratic equations of the form $ax^2 + bx + c = 0$ by completing the square	Teach: Workbook examples A, B, C <ul style="list-style-type: none"> • In-class problems for students: Worksheet: 3, 4, 5	Myopenmath <ul style="list-style-type: none"> • Video problems • Practice problems
50.	9.4	Quadratic Formula	Solve quadratic equations by using the quadratic formula	Teach: Workbook examples A, D, E <ul style="list-style-type: none"> • In-class problems for students: Worksheet: 1, 5, 8, 10	Myopenmath <ul style="list-style-type: none"> • Video problems • Practice problems