

<b>FARMINGDALE UFSD</b>				
<b>Grade 9 Algebra Curriculum - Scope and Sequence</b>				
<b>Revised for September 2008</b>				
<b>Director: Gerardine M. Johnson-Carpenter, Ed.D.</b>				
<b>Textbook: PRENTICE HALL MATHEMATICS: New York</b>				
<b>INTEGRATED ALGEBRA 2008</b>				
<b>DATE</b>		<b>PI</b>	<b>TEXTBOOK PAGES</b>	<b>EXTRA PRACTICE PAGES</b>
<b>LESSON</b>				
<b>UNIT I: PRE-ALGEBRA REVIEW, SETS, AND NUMBER THEORY - 7 days</b>				
1.	Pre-algebra Review (number systems, rational & irrational #s, signed #s, ordering real numbers, order of operations and absolute value.)		9 - 13,17 - 22	54,328,724
2.	What is a set?	A.N.6	NY738 - NY739	
3.	How do we perform operations on sets? (include Venn diagrams and interval notation)	A.A.30 A.A.31	NY739 - NY747	NY751, NY757, NY758, NY759
4.	What are the properties of real numbers?	A.N.1	86-89	217,727
5.	What is scientific notation and how do we use it to compute products and quotients of numbers?	A.N.4	436-440	446,517,570
6.	Review			
7.	Test			
<b>Unit II: OPERATIONS WITH MONOMIALS AND POLYNOMIALS</b>				
<b>- 10 days</b>				
1.	How do we add and subtract monomials?	A.A.13	81,83	
2.	How do we add and subtract polynomials?	A.A.13	494-498	503,621 740,741
3.	How do we multiply monomials? (include review of multiplying powers of the same base.)	A.A.12	441-442, 443-445	
4.	How do we multiply a polynomial by a monomial?	A.A.13	81,82,500-502	510,556,740
5.	How do we multiply polynomials? (binomials and binomial with a polynomial.)	A.A.13	505-509, 512-516	517,523,548, 563,628,740
6.	How do we divide monomials? (include review of dividing powers of the same base.)	A.A.14	453	
7.	How do we divide a polynomial by a monomial? (with no remainder)	A.A.14	682,684,716	
8.	How do we divide a polynomial by a binomial? (with no remainder)	A.A.14	683-686	746
9.	Review			
10.	Test			

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	<b>UNIT III: ALGEBRAIC SOLUTIONS TO LINEAR EQUATIONS AND INEQUALITIES</b>			
	<b>- 13 days</b>			
	1. How do we solve and check one step equations?	A.A.21 A.A.22	118	198,728
	2. How do we solve and check two step equations?	A.A.21 A.A.22	119-124	132,173, 198,728
	3. How do we solve and check equations with variables on both sides and with parentheses?	A.A.21 A.A.22	126-127, 129-130, 132,134-137	139,165,198, 217,306,315, 328,372,728
	4. How do we solve proportions and word problems with percents?	A.A.26 A.N.5	144-148, 166-167	728
	5. How do we solve literal equations?	A.A.23		306,372
	6. How do we translate verbal phrases into algebraic expressions and verbal problems into equations and distinguish the difference between them?	A.A.1 - A.A.4	4-8,81	54,725,NY731, NY737
	7. How do we analyze and solve verbal mathematic equations in one variable?	A.A.5 A.A.6	158	729
	8. More on solving verbal problems (include linear consecutive integers and Distance-rate-time problems)	A.A.5 A.A.6	159-164	173,193
	9. How do we solve linear verbal problems with perimeter and area?	A.A.5 A.A.6	158	165,173
	10. How do we solve linear inequalities in one variable?	A.A.21 A.A.24	200-203, 206-211, 212-216, 220-223	217,225,283, 356,402,730
	11. How do we analyze and solve verbal problems whose solution involves solving a linear inequality?	A.A.6	202,203,208, 209,214,216, 217, 220,222-224	730,731
	12. Review			
	13. Test			
	<b>UNIT IV: Graphing linear equations and inequalities - 10 days</b>			
	1. What is slope and how do we compute it given the coordinates of two points? (explain slope as a rate of change between dependent and independent variables)	A.A.32 A.A.33	308-315	323,402,452
	2. What is the slope-intercept equation of a line and how do we use it to graph the line?	A.G.4	317-322	372,435,734
	3. What is direct variation and how do we graph solutions to real life problems?	A.N.5	277-282,319, 324-327	735
	4. How do we graph linear inequalities?	A.G.6	404-409,419	418,423,440

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	5. How do we write the equation of a line given its slope and the coordinates of a point on the line?	A.A.34	336,339-340	349
	6. How do we write the equation of a line given the coordinates of two points on the line?	A.A.35	337-340	734
	7. How do we write the equations and graph lines parallel to the x-axis and y-axis and determine the slope of a line given its equation in any form?	A.A.36 A.A.39	330-334	734
	8. How do we determine if two lines are parallel given their equation in any form and how do we determine whether a given point is on a line given its equation?	A.A.38 A.A.39	343-348	335,653
	9. Review			
	10. Test			
	<b>UNIT V: Systems of linear equations and inequalities - 11 days</b>			
	1. How do we solve systems of linear equations graphically?	A.G.7	374-378	380,386,421, 459,523,736, NY724
	2. How do we solve systems of equations with rational coefficients graphically?	A.G.7		736
	3. How do we solve systems of equations algebraically by addition and/or subtraction? (elimination method)	A.A.10	386-387,390	402,503,736
	4. How do we solve systems of equations algebraically with multiplication?	A.A.10	388-392	402,736
	5. More on solving systems of equations algebraically with multiplication	A.A.10	388-392	402,736
	6. How do we solve systems of equations algebraically with substitution?	A.A.10	382-385	393,452, 539,736
	7. How do we analyze and solve verbal problems whose solution requires solving systems of linear equations?	A.A.7	384,389-392, 396-401	410,523,737
	8. How do we solve systems of inequalities and determine whether a given point is in the solution set?	A.G.7 A.A.40	411-417	435,446,736
	9. More on solving system of inequalities	A.G.7 A.A.40	411-417	736
	10. Review			
	11. Test			
	<b>UNIT VI: OPERATIONS WITH RADICALS - 6 days</b>			
	1. How do we simplify radicals? (No variables in radicand. Include determining rational or irrational.)	A.N.2	176-178, 616,618, 619, 620	187
	2. How do we add and subtract radicals? (Use like and unlike radical terms.)	A.N.3	622,625	744
	3. How do we multiply and divide radicals?	A.N.3	617-620	744

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	4. Mixed review with radicals		625	628,634,744
	5. Review			
	6. Test			
	<b>UNIT VII: FACTORING - 7 days</b>			
	1. How do we factor a greatest common monomial factor from a polynomial?		501-502	510
	2. How do we factor the difference of two perfect squares? (Include some binomials that need to have a GCF factored out first.)	A.A.19	530-532	740
	3. How do we factor a trinomial in the form $ax^2 + bx + c$ when $a = 1$ ? (Include some trinomials that need to have a GCF factored out first.)	A.A.20	519-522, 528,531	527,548,584, 570,634,740
	4. How do we factor a trinomial in the form $ax^2 + bx + c$ where $a \neq 1$ ? (Include some trinomials that need to have a GCF factored out first.)	A.A.20	524-526	533,548,576. 584,634,740
	5. Practice all types of factoring and emphasize factoring completely.	A.A.20	535,537	539,584,643, 649,670,740
	6. Review		740	
	7. Test			
	<b>UNIT VIII: QUADRATIC EQUATIONS - 11 days</b>			
	1. How do we solve a quadratic equation with integral coefficients and integral roots by factoring? (Include differentiating between factors of a quadratic expression and roots of a quadratic equation.)	A.A.27 A.A.28	572-574	584,628, 697,742
	2. Practice solving quadratic equations. (Include solving proportions that result in solving a quadratic equation.)	A.A.26	572-574, 694-695	742
	3. How do we graph a quadratic equation (a parabola)?	A.G.4	557-558	
	4. Practice graphing parabolas.	A.G.4	557-558	570,621,681
	5. How does changing aspects of the quadratic equation affect it's graph? (i.e.: change in the equations coefficients.)	A.G.5	552-554	563,742
	6. How do we determine the vertex and axis of symmetry of a parabola graphically?	A.G.10	550-552, 560,561,570	570,621, 681,742
	7. How do we determine the vertex and axis of symmetry of a parabola algebraically?	A.A.41	557,560	742
	8. How do we find the roots of a quadratic equation graphically? (Only quadratic equations with integral solutions.)	A.G.8	565-567	NY724
	9. Practice finding roots of quadratic equations graphically.		565-567	
	10. Review			
	11. Test			

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	<b>UNIT IX: QUADRATIC APPLICATIONS - 7 days</b>			
	1. How do we solve verbal problems that result in quadratic equations?	A.A.8	574	743
	2. More on solving verbal quadratic equations. (Include area, consecutive integers, etc.)	A.A.8	567-568, 573-574	576,743
	3. How do we solve a quadratic/linear system of equations graphically?	A.G.9	NY752-NY753, NY755-NY756	
	4. How do we solve a quadratic/linear system of equations algebraically?	A.A.11	NY753-NY754, NY755-NY756	
	5. Practice solving quadratic/linear system of equations algebraically	A.A.11	NY753-NY754, NY755-NY756	
	6. Review			
	7. Test			
	<b>UNIT X: FUNCTIONS - 9 days</b>			
	1. What is a function? (Define relation, function, and include determining functions by examining ordered pairs and inspecting graphs of relations.)	A.G.3	27-30, 257-260	349,732
	2. What are the different types of functions? (Identify and graph: linear, quadratic/parabola, absolute value and exponential.)	A.G.3	667-669, 358-362, 265-267	548,734
	3. Continue with identifying and graphing functions. (Concentrate on graphing exponential functions.)	A.G.4	468-472	306,379,386
	4. How does the change in the coefficients of a function change its graph? (Include: linear, quadratic, absolute value, and exponential.)	A.G.5	358-362, 552-555	459,499, 676,742
	5. How do we identify and solve growth and decay verbal problems?	A.A.9	475-482	499,738,739
	6. More on growth and decay verbal problems.	A.A.9	475-482	596
	7. Practice growth and decay verbal problems.	A.A.9	475-482	
	8. Review			
	9. Test			
	<b>UNIT XI: ALGEBRAIC FRACTIONS - 10 days</b>			
	1. How do we determine when a fraction is undefined (finding the excluded value)? (Include quadratic denominators.)	A.A.15	672	
	2. How do we simplify algebraic fractions? (Include fractions with polynomials in both numerator and denominator.)	A.A.16	672-676	681,746
	3. How do we multiply algebraic fractions?	A.A.18	677-680	686,746
	4. How do we divide algebraic fractions?	A.A.18	677-680	686,746

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	5. How do we add and subtract algebraic fractions with like denominators? (Include fractions with polynomial denominators.)	A.A.17	687-688, 689-690	746
	6. How do we add and subtract algebraic fractions with unlike denominators? (Monomial denominators only.)	A.A.17	688-690	746
	7. How do we solve equations containing fractional coefficients?	A.A.25	692-696	746
	8. How do we solve fractional equations?	A.A.25 A.A.26	692-696	746
	9. Review			
	10. Test			
	<b>UNIT XII: PYTHAGOREAN THEOREM AND RIGHT TRIANGLE TRIGONOMETRY - 8 days</b>			
	1. How do we find the third side of a right triangle using the Pythagorean theorem? (Include irrational lengths and verbal problems.)	A.A.45	181-187	205,681, 728,729
	2. What is right triangle trigonometry? (Include finding Sine, Cosine, and Tangent ratios given sides of a right triangle.)	A.A.42	646-648	653,686,744
	3. How do we use trigonometry to find a side of a right triangle given an angle and a side of the triangle?	A.A.44	647-649	
	4. How do we determine the measure of an angle of a right triangle given the lengths of any two sides?	A.A.43	654	
	5. How do we solve verbal problems involving trigonometry?	A.A.43 A.A.44	650-652	744,745
	6. More on solving verbal trigonometric problems.		650-652	744,745
	7. Review			
	8. Test			
	<b>UNIT XIII: PROBABILITY - 10 days</b>			
	1. What is probability and how do we calculate the probability of a single event and its complement? (Include definitions, tree diagrams, and/or, and Empirical vs. Theoretical probabilities)	A.S.19 A.S.20	93-97,110-111	315,726,727
	2. What are factorials, permutations, and the counting principle?	A.N.6 A.N.7 A.N.8	699-705	711,746,747
	3. How do we determine empirical probabilities based on specific sample data? (Determine, based on calculated probability of a set of events if: some or all are likely to occur, one is more likely to occur than the other, and whether or not an event is certain to happen or not to happen.)	A.S.21		
	4. How do we determine the probability of mutually exclusive events and events that are not mutually exclusive?	A.S.22 A.S.23	107	

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	5. What is conditional probability and how do we use it to solve for probabilities in finite sample spaces?	A.S.18	660-661	
	6. More on conditional probability.		660-661	
	7. How do we calculate the probability of independent and dependent events?	A.S.22	101-106,111	725,726,727
	8. More on independent and dependent events.		101-106,111	
	9. Review			
	10. Test			
	<b>UNIT XIV: STATISTICS -12 days</b>			
	1. What is statistics? (Include collecting, organizing, and grouping data. Categorize data as qualitative or quantitative, determine if univariate or bivariate, and determine if biased or unbiased.)	A.S.1 A.S.2 A.S.3	546-547, NY726-NY730	NY747
	2. What are the measures of central tendency? (include determining for grouped data and comparisons of appropriateness.)	A.S.4	40-46	99.205,262, 393,614,724
	3. How do we construct and interpret a histogram?	A.S.5 A.S.9	304-305,771	
	4. How do we construct and interpret a cumulative frequency histogram?	A.S.5 A.S.9	304-305	
	5. What are percentiles and quartiles? (Include finding percentile rank and identify point values for first, second, and third quartiles.)	A.S.11	NY732-NY-733, NY737	NY747
	6. How do we construct and interpret Box and Whisker plots? (Include minimum, maximum, and the three quartiles.)	A.S.6 A.S.9	NY732-NY737	NY724
	7. How do we create a scatter plot of bivariate data? (Include identifying the relationship between independent and dependent variables: positive, negative, or none.)	A.S.7 A.S.12	33-39	306,724,725
	8. How do we determine the equation of the line of best fit for a given data? (Include causation/correlation.)	A.S.8 A.S.13 A.S.14	350-355, NY750	363,435,735, NY757
	9. More on line of best fit and How do we make a prediction involving interpolation or extrapolation?	A.S.13 A.S.14 A.S.17	NY748-NY751	
	10. How do we evaluate published reports and graphs based on data by considering: experimental design, appropriateness of the data analysis, and the soundness of the conclusions?	A.S.10 A.S.15		
	11. Review			
	12. Test			



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