Math 012 Objectives, Section by Section

You should be able to do each of the items listed.

Chapter 1: Real Numbers and Algebraic Expressions

Section 1.2

• use the vocabulary and symbols of number sets
• calculate absolute values
• write phrases as algebraic expressions
• evaluate algebraic expressions

Section 1.3

• perform operations on real numbers
• simplify expressions containing exponents
• find roots of real numbers
• use order of operations
• evaluate algebraic expressions

Section 1.4

• translate words to mathematical symbols
• identify and apply the commutative and associative properties
• identify and apply the identity and inverse properties
• identify and apply the distributive property
• write and simplify algebraic expressions

Chapter 2: Equations, Inequalities, and Problem Solving

Section 2.1

• solve linear equations using properties of equality
• solve linear equations containing fractions
• solve linear equations containing decimals
• identify linear equations that are identities
• identify linear equations that have no solution
Math 012 Objectives, Section by Section

Section 2.2
- write algebraic expressions that can be simplified
- use the steps for solving real-world problems

Section 2.3
- solve formulas for specified variables
- use formulas to solve problems

Section 2.4
- solve linear inequalities
- use interval notation
- graph solutions to linear inequalities on number lines
- solve problems using linear inequalities

Section 2.5
- find intersections and unions of sets
- solve compound inequalities containing and and or

Chapter 3: Graphs and Functions

Section 3.1
- graph points on the rectangular coordinate system
- determine whether an ordered pair is a solution to an equation in two variables
- graph linear equations
- find x- and y-intercepts
- graph absolute value equations and parabolas
Section 3.2

- understand the vocabulary of relations and functions
- identify functions
- use the vertical line test for functions
- find the domain and range of a function
- use function notation

Section 3.3

- graph a linear equation by finding and plotting intercepts
- identify and graph vertical and horizontal lines

Section 3.4

- find slope of a line given two points
- find slope of a line given an equation
- find slopes of horizontal and vertical lines
- compare slopes of parallel and perpendicular lines
- use and interpret slope and intercept in application problems

Section 3.5

- find and use the slope-intercept form of a linear equation
- use slope-intercept form to determine whether lines are parallel, perpendicular, or neither
- find and use point-slope form of a linear equation
- be able to convert equations of lines to standard form
- find equations of parallel and perpendicular lines

Chapter 5: Exponents, Polynomials, and Polynomial Functions

Section 5.1

- evaluate exponential expressions
- apply rules of exponents
- use the zero-exponent rule
- evaluate numbers raised to negative integer powers
- simplify expressions involving negative exponents
- write numbers in scientific notation
- convert numbers from scientific notation to standard form
Section 5.2

- use power rules for exponents
- use exponent rules and definitions to simplify exponential expressions
- solve problems using scientific notation

Section 5.3

- identify polynomials and learn the vocabulary of polynomials
- add and subtract polynomials

Section 5.4

- multiply polynomials
- multiply the sum and difference of two terms
- square binomials
- evaluate polynomial functions

Section 5.5

- identify and factor out the greatest common factor
- factor polynomials by grouping

Section 5.6

- factor trinomials

Section 5.7

- factor a perfect square trinomial
- factor the difference of two squares
- factor the sum or difference of two cubes

Section 5.8

- solve polynomial equations by factoring
Chapter 6: Rational Expressions

Section 6.1

- find the domain of a rational expression
- simplify rational expressions
- multiply and divide rational expressions
- use rational expressions in practical problems

Section 6.2

- add and subtract rational expressions with common denominators
- identify the least common denominator of two or more rational expressions
- add and subtract rational expressions with unlike denominators

Section 6.5

- solve equations containing rational expressions

Section 6.6

- solve an equation containing rational expressions for a specified variable
- use rational expressions to solve practical problems

Section 6.7

- solve problems involving direct, inverse, and joint variation

Chapter 7: Rational Exponents, Radicals, and Complex Numbers

Section 7.1

- find square roots
- approximate roots using a calculator
- find cube roots
- find nth roots

Section 7.2

- understand and use positive and negative rational exponents
- convert between rational exponents and radical form
Math 012 Objectives, Section by Section

Section 7.3

- simplify radicals
- use the product and quotient rules for radicals

Section 7.4

- add and subtract radical expressions
- multiply radical expressions

Section 7.5

- rationalize denominators with one or two terms

Section 7.6

- solve equations containing radical expressions
- solve practical problems using equations involving radical expressions

Chapter 8: Quadratic Equations and Functions

Section 8.1

- solve quadratic equations by completing the square
- solve practical problems using quadratic equations

Section 8.2

- solve quadratic equations by using the quadratic formula

Section 8.3

- solve equations that are quadratic in form
- solve practical problems that lead to quadratic equations