

Arithmetic and Algebra Skills Checklist

Arithmetic

Whole Numbers and Fractions

- Add, subtract, multiply, and divide whole numbers
- Add, subtract, multiply, and divide fractions and mixed numbers
- Divide a whole number by a fraction or mixed number
- Divide a fraction/mixed number by a whole number, fraction, or mixed number (Mixed operations with whole numbers, fractions, and mixed numbers)
- Determine squares and square roots of whole numbers and fractions
- Compare the size of fractions and mixed numbers
- Convert fractions into decimals and percentages
- Solve simple word problems involving fractions
- Use rounding and estimation

Applications

- Determine ratios and proportions
- Convert a quantity into fractional parts
- Measurement problems
- Determine perimeter, area, and/or volume
- Determine averages
- Problems related to graphs and tables

Decimals and Percents

- Add, subtract, multiply and divide decimals
- Multiply decimals by whole numbers other than powers of ten
- Multiply decimals by decimals
- Multiply a decimal by a power of ten
- Divide a decimal by a whole number other than a power of ten
- Divide a decimal by a decimal
- Divide a whole number by a decimal
- Divide a decimal by a power of ten
- Convert a decimal into a fraction or percentage
- Order decimals, fractions, and percents by size
- Round and estimate decimals, fractions, and percents
- Understand the place values of decimals
- Compare the size of decimals, fractions, and percents
- Determine the percent of a number (what is 8% of 60?)
- Determine the percent one number is of another (30 is what percent of 60?)
- Determine the squares and square roots of decimals
- Solve simple word problems involving decimals and percentages

Algebra

Integers and Rationals

- Work with and order signed numbers
- Determine absolute value

Algebraic Expressions

- Evaluate formulas and other algebraic expressions
- Solve for a variable
- Add and subtract monomials and polynomials
- Multiply monomials and polynomials
- Work with positive rational roots and exponents
- Square a binomial
- Factor the difference of squares
- Factor polynomials that are not quadratics
- Work with algebraic fractions involving addition, subtraction, multiplication, and division
- Divide and simplify monomials and polynomials

Equations, Inequalities, and Word Problems

- Solve linear equations and inequalities
- Know your order of operations
- Find solutions for quadratic equations by factoring
- Translate written phrases or sentences into algebraic expressions or equations
- Solve verbal problems in an algebraic context including geometric reasoning
- Cartesian Coordinate Plane and basic graphing

Study Resources

math.com (algebra practice section)
purplemath.com (select Lesson Index)
algebrahelp.com
khanacademy.org (select Subject index)