Grammar Hero's Essential Study Guide for the PiCAT and ASVAB

Note: Simply click on a topic below to watch the video (by holding the control [CTRL] key and clicking the link, you can open the video in a new tab). In addition to watching these videos, you should also memorize the formulas in my reference sheet as well as work through the practice test questions in my Math Boot Camp playlist. As a reminder, you are not permitted to use a calculator on the PiCAT or ASVAB. For that reason, a review of basic math was included at the beginning of this study guide. **STOP PAYING FOR TUTORING! THIS STUDY GUIDE HAS EVERYTHING YOU NEED TO SUCCEED!**

Basic Math

1. Adding and Subtracting Integers (Positive and Negative Numbers)
2. Multiplying and Dividing with Positives, Negatives, One, and Zero
3. Long Division
4. Operations with Decimals (Add, Subtract, Multiply, Divide)
5. Prime Numbers and Divisibility
6. Factorials

Conversions

1. Converting Fahrenheit to Celsius
2. Converting Celsius to Fahrenheit

Fractions

1. Simplify, Add, Subtract, Multiply, Divide, Mixed Numbers, and Converting to Decimals
2. Reciprocals of Fractions, Whole Numbers, and Mixed Numbers
3. Converting Fractions, Decimals, and Percentages
4. Algebraic Fractions (Rational Expressions)
5. Fraction Word Problems

Pre-Algebra

1. Combining Like Terms and Adding and Subtracting Polynomials
2. Multiplying Polynomials
3. Order of Operations (PEMDAS)

Algebra

1. Solving Equations
2. Solving Literal Equations
3. Evaluating Algebraic Expressions
4. Solving One-Step Inequalities
5. Solving Multiple-Step Inequalities
6. Calculating Slope
7. Writing Equations of Lines
8. Solving Systems of Equations: The Substitution and Elimination Methods

9. Factoring Trinomials (Leading Coefficient is One)
10. Factoring Trinomials (Leading Coefficient is NOT one)
11. Factoring by Grouping
12. Factoring the Difference of Squares
13. Law of Exponents

Geometry

1. Area and Perimeter of Quadrilaterals
2. Triangles
3. The Pythagorean Theorem
4. Circles
5. Surface Area and Volume
6. Similar Figures
7. Finding the Area of Shaded Regions
8. Complimentary and Supplementary Angles
9. 24 Essential Geometry Practice Problems

Word Problems

1. Distance, Rate, and Time (D = RT)
    - Challenging Distance, Rate, and Time Word Problems
2. Ratios, Rates, and Proportions
    - Challenging Proportion Problems
3. Calculating Tax, Tips, and Discounts & Finding the Original Price
4. Combined Rates and Work
5. The Fundamental Counting Principle
6. Percentages
7. Simple Interest
8. Compound Interest

Statistics and Probability

1. Mean, Median, Mode, and Range
2. Calculating a Missing Value Given the Mean
3. Basic Probability