STRATEGY SUMMARY

MATH MULTIPLE-CHOICE STRATEGIES

When approaching a Math: Multiple-Choice item, you should pay careful attention to several things:

1. **Figures:** Unless otherwise specifically noted, the figures included as illustrations are drawn to scale.

2. **Answer Choices:** Most answer choices are arranged in order of ascending or descending value and many incorrect answer choices correspond to conceptual errors.

3. **"Signal" Words:** "Signal" words such as thought-reversers (e.g., not, cannot, except) or specified units may be capitalized, underlined, or italicized. These words are critical to correctly understanding the item. Pay careful attention to thought-reversers, as they reverse the apparent meaning of an item.

4. **Ladder of Difficulty:** For each group of Multiple-Choice items in a Math test section, the difficulty level increases as the item number increases. Therefore, allot less time for earlier items. When solving items that are high on the ladder of difficulty, do NOT expect obvious answers or easy solutions. It is unlikely that answers corresponding to easy solutions or to numbers in the item stem will be the correct choice. Remember to pace yourself—difficult, time-consuming items have the same value as the easy items.

5. **Preview Item Stems:** Read the item stem first. Only then should you read the details of the item, keeping this item stem in mind.

6. **Confirm Solutions:** Double-check the solution by confirming that it answers the particular question that is being asked. When applicable, this confirmation includes verifying that the solution is given in the units specified by the item stem. If you are unable to either find an elegant (quick) solution or solve the item directly based on subject knowledge, the following alternative solutions strategies can be extremely helpful.

ALTERNATIVE CONTENT STRATEGIES

If you are unable to either find an elegant (quick) solution or solve the item directly based on subject knowledge, the following alternative solutions strategies can be extremely helpful:

1. **"Test-the-Test" Strategy:** The correct answer to any item is always one of four given choices. Sometimes, the easiest and quickest way to solve an item is to test each of the answer choices. The "test-the-test" strategy can mean plugging answer choices back into the item—starting with (C)—to test the validity of an expression, or it can mean checking each answer choice against any stated conditions. The "test-the-test" strategy is typically useful for items with numerical solutions or variables and values that meet stated conditions.

2. **"Plug-and-Chug" Strategy:** This strategy is similar to the "test-the-test" strategy because the item stem and answer choices (rather than direct mathematical solution strategies) are used to isolate the correct answer. The difference is that rather than testing the validity of each answer choice against the item stem conditions, the item stem and/or answer choices are evaluated by plugging in chosen numbers: "plug-and-chug." This strategy is especially helpful when solving Algebra items.

3. **"Eliminate-and-Guess" Strategy**: If unable to determine the correct answer directly by using mathematical methods or indirectly by using either the "test-the-test" or "plug-and-chug" strategy, eliminate as many answer choices as possible and then guess from the remaining answer choices. For difficult mathematics items, eliminate answer choices that can be reached either by a single step or by copying a number from the item.

CHECKLIST OF SKILLS AND CONCEPTS

My Notes

Problem Solving
___Percentages (Change, Original Amount, Price Increase)
___Ratios (Two-Part, Three-Part, Weighted)
___Proportions (Direct, Indirect)

Arithmetic
___Properties of Numbers (Odd, Even, Negative, Positive, Consecutive)
___Sets (Union, Intersection, Elements)
___Absolute Value
___Complex Numbers

Algebra
___Evaluation of Expressions (Rational, Radical)
___Exponents (Integer, Rational, Negative)
___Factoring
___Sequence
___Solving Single Variable Equations and Inequalities
___Absolute Value
___Creating Equations
___Function Math
___Domain and Range
___Solving Equations (Multi-Variable, Linear, Quadratic, Simultaneous)

Coordinate Geometry
___Coordinate Plane
___Slope of a Line
___Slope-Intercept Form of a Linear Equation
___Distance Formula
___Graphing Linear Equations
___Graphing First-Degree Inequalities
___Graphing Quadratic Equations
___Permutations of Equations and Graphs

Geometry
___Lines and Angles (Perpendicular, Parallel, Intersecting, Big Angle/Little Angle Theorem)
___Triangles (Equilateral, Isosceles, Acute, Obtuse, Perimeter, Area, Altitudes, Angles, Bisectors, Pythagorean Theorem)
___Quadrilaterals (Squares, Rectangles, Rhombuses, Parallelograms, Trapezoids, Perimeter, Area)

CHECKLIST OF SKILLS AND CONCEPTS

My Notes

___Circles (Chords, Tangents, Radius, Diameter, Circumference, Area)
___Solids (Cubes, Cylinders, Spheres, Volumes, Surface Areas)
___Complex Figures

Data Interpretation
___Graphs (Bar, Cumulative, Line)
___Pie Charts
___Tables
___Scatterplots

Statistics
___Averages (Simple, Weighted), Median, and Mode
___Data Representations (Histograms, Box and Whisker Plots, Frequency Tables, Dot Plots)
___Data Interpretation (Drawing Inferences, Data Collection Methods)

Probability
___Arithmetic Probability
___Geometric Probability