STRATEGY SUMMARY

MATH STRATEGIES

When approaching a Mathematics item, there are several things to which you should pay careful attention:

Figures

Figures are usually, but not always, drawn to scale. When all other options for answering the item fail, try the strategy of assuming the figure *is* drawn to scale. Then, use the figure to help you answer the item.

Answer Choices

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

"Signal" Words

Typically, "signal" words are capitalized (e.g., thought-reversers, such as "NOT," "CANNOT," and "EXCEPT"); however, they may sometimes be underlined or italicized (e.g., specified units). While the specific formatting of these words may vary, they can be critical to correctly understanding the item. Pay careful attention to thought-reversers, as they reverse the apparent meaning of an item.

Ladder of Difficulty

Difficult Mathematics items tend to be clustered near the end of the section. When solving items that are high on the ladder of difficulty, be wary of simplistic answers and the "Cannot be determined..." response. Remember to pace yourself—difficult, time-consuming items have the same value as the easy items.

Item Stems

Read the item stem first. Only then should you read the details of the item, keeping this item stem in mind.

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.

MATH 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:

"Test-the-Test" Strategy

The correct answer to any item is always one of five 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 the middle answer choice) 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.

"Plug-and-Chug" Strategy

This strategy is similar to the "test-the-test" strategy in that 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.

"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

Number and Quantity

___ Basic Arithmetic Manipulations
___ Properties of Numbers (Odd, Even, Negative, Positive, Consecutive)
___ Scientific Notation
___ Complex Numbers
___ Matrices and Vectors
___ Ratios (Two-Part, Three-Part, Weighted), Rates, and Proportions (Direct, Indirect)
___ Percentages (Change, Original Amount, Price Increase)

Algebra and Functions

___ Evaluation of Expressions (Rational, Radical)
___ Exponents (Integer, Rational, Negative)
___ Factoring
___ Sequence
___ Solving Single Variable Equations and Inequalities
___ Absolute Value
___ Function Math
___ Domain and Range
___ Solving Equations (Multi-Variable, Linear, Simultaneous, Quadratic)
___ Story Problems: Work (Joint Effort), Averages

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

CHECKLIST OF SKILLS AND CONCEPTS

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)
___ Polygons (Sum of Interior Angles)
___ Circles (Chords, Tangents, Radius, Diameter,
Circumference, Area)
___ Solids (Cubes, Cylinders, Spheres, Volumes, Surface
Areas)
___ Complex Figures

Trigonometry

___ Trigonometric Functions
___ Trigonometric Values
___ Trigonometric Relationships

Statistics and Probability

___ Measures of Center (Average, Median, Mode)
___ Probability
___ Counting Methods (Combinations, Permutations)
___ Sets (Union, Intersection, Elements)
___ Graphs (Bar, Cumulative, Line)
___ Pie Charts
___ Tables
___ Scatterplots

My Notes