GMAT math formula sheet

1. Algebra

- Exponential equations:

    - $x^n * x^m = x^{(n+m)}$

    - $(x^n) / (x^m) = x^{(n-m)}$

    - $(x/y)^n = x^n / y^n$

    - $x^n * y^n = (xy)^n$

    - $(xy)^z = x^z * y^z$

    - $x^{-n} = 1/x^n$

    - $1^n = 1$

    - $x^0 = 1$

    - $0^n = 0$ (Note: 0^0 is considered an indeterminate form)

- Quadratic equations:

    - General form: $ax^2 + bx + c = 0$

    - Quadratic formula: $x = [-b \pm sqrt(b^2 - 4ac)] / 2a$

- Other formulas:

    - Future Value = Current Value * $(1 + growth\ rate)^{Time}$

    - Distance = Speed * Time

    - Wage = Rate * Time

2. Arithmetic

- Combinatorics:

    - Combinations: $nCk = n! / [(n-k)! * k!]$

    - Permutations: $nPk = n! / (n-k)!$

    - Circular permutations: $(n-1)!$

- Fractions:

    - $(a/b) / (c/d) = (a/b) * (d/c)$

- Percents:

    - Percent change = (New - Old) / Old

- New Value = (1 + Growth Rate) * Old Value
- Probability:
    - Probability of Event E = P(E) = Number of favorable outcomes / Total number of outcomes
    - P(not E) = 1 - P(E)
    - P(E or F) = P(E) + P(F) - P(E and F)
    - P(E and F) = P(E) * P(F) (If E and F are independent events)

3. Number Properties

- Odd * Even = Even
- Odd * Odd = Odd
- Even * Even = Even
- Odd ± Even = Odd
- Odd ± Odd = Even
- Even ± Even = Even
- Positive * Positive = Positive
- Positive * Negative = Negative
- Negative * Negative = Positive
- Positive / Negative = Negative
- Positive / Positive = Positive
- Negative / Negative = Positive

4. Statistics

- Mean (average) = Sum of all numbers / Number of numbers
- Median: the middle number (or average of the two middle numbers if there are an even number of values) when all values are arranged in ascending order
- Mode: the most frequently occurring value in a data set

5. Geometry

- Angles:
    - Sum of Interior Angles of a Polygon = (n-2) * 180 (where n = number of sides)
    - Central Angle = 2 * Inscribed Angle

- Area:
    - Square: A = side^2
    - Rectangle: A = length * width
    - Parallelogram: A = base * height
    - Trapezoid: A = 0.5 * (base1 + base2) * height
    - Circle: A = πr^2
    - Sector of a Circle = (central angle/360) * πr^2
- Perimeter:
    - Square: P = 4 * side
    - Rectangle: P = 2 * (length + width)
    - Circle: C = 2πr
- Triangles:
    - Area: A = 0.5 * base * height
    - Pythagorean theorem: a^2 + b^2 = c^2
- Volume:
    - Cube: V = side^3
    - Rectangular solid (Box): V = length * width * height
    - Cylinder: V = πr^2h

6. Interest Formulas

- Simple Interest: Interest = Principal * rate * time
- Compound Interest (annually): Interest = Principal * (1 + rate)^time
- Compound Interest (compounded n times per year): Interest = Principal * (1 + rate/n)^(n*time)

This list should cover the majority of the formulas you would need for the GMAT's Quantitative section, but understanding how to apply them is equally important. Practice solving a variety of problems to become more comfortable with these concepts.