1. **Sequences, Series, and Mathematical Induction**
   - define a sequence
   - identify arithmetic and geometric sequences
   - find a formula for the $n$th term of a sequence
   - use sequences defined recursively to solve problems
   - define a series
   - find the sum of the first $n$ terms of arithmetic or geometric series
   - find or estimate the limit of an infinite sequence or determine that it does not exist
   - find the sum of an infinite geometric series
   - represent series using sigma notation
   - use mathematical induction to prove that a statement is true

2. **Matrices**
   - find the sum, difference, or scalar multiples of matrices
   - find the product of two matrices
   - find the inverse of a $2 \times 2$ matrix
   - use matrices to solve linear systems
   - solve communication network problems using matrices
   - make predictions using powers of matrices
   - find the images of points under different types of transformations using matrices

3. **Combinatorics**
   - use Venn diagrams to illustrate intersections and unions of sets
   - use the inclusion-exclusion principle to solve counting problems involving intersections and unions of sets
   - use the multiplication, addition, and complement principles to solve counting problems
   - solve problems involving permutations and combinations

4. **Probability**
   - define sample space
   - define probability
   - find the probability of two events occurring together
   - calculate conditional probabilities
   - determine if events are independent
   - use the binomial probability theorem
   - use combinations to solve probability problems
   - solve problems involving conditional probability
   - find the expected value of a game
   - determine whether a game is fair

5. **Statistics**
   - display data in a stem-and-leaf plot, a histogram, a frequency polygon, or a cumulative frequency polygon
   - find the mean, median, and mode of a set of data
   - draw a box-and-whisker plot for a set of data
   - use box-and-whisker and stem-and-leaf plots to compare sets of data
   - find the variance and standard deviation of a set of data
   - convert data to standard values
   - recognize uniform, skewed, and normal distributions
   - determine for a normal distribution the percent of data within a given interval
   - find percentiles for a set of data
   - recognize different types of sampling procedures and identify their limitations
   - estimate population characteristics based on samples
   - use a sample proportion to find a confidence interval for the corresponding population proportion
6. **Curve Fitting and Models**
   - find the line of best-fit for a set of data
   - find the correlation coefficient for a set of data
   - find the best-fitting exponential curve
   - fit a power curve to a set of data
   - choose the best model for a data set

7. **Limits, Series, and Iterated Functions**
   - find the limit of a function
   - find the limit of the quotient of two functions
   - determine whether a function is continuous
   - sketch the graph of a rational function
   - use the power series of a given function to find an infinite series for a functional value or for a related function (optional)
   - analyze orbits for iterations of a given function (optional)

**COMMENTS OR ADDITIONAL TOPICS COVERED:**

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