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Mastery Cheat Sheet: Data Interpretation (DI)

1. Percentage Fundamentals

Percentages form the bedrock of Data Interpretation. Memorize standard fractions and master rapid conversion techniques.

Key Conversions

- $\frac{1}{2} = 50\%$ $\frac{1}{3} = 33.33\%$
- $\frac{1}{4} = 25\%$ $\frac{1}{5} = 20\%$
- $\frac{1}{6} = 16.67\%$ $\frac{1}{7} = 14.28\%$
- $\frac{1}{8} = 12.5\%$ $\frac{1}{9} = 11.11\%$
- $\frac{1}{11} = 9.09\%$ $\frac{1}{12} = 8.33\%$

Percentage Change

$$\% \text{ Change} = \left(\frac{\text{Final Value} - \text{Initial Value}}{\text{Initial Value}} \right) \times 100$$

2. Averages Weighted Means

Arithmetic Mean:

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n}$$

Weighted Average:

$$\bar{x}_w = \frac{\sum w_i x_i}{\sum w_i}$$

— *Crucial when dealing with combined group ratios or average marks of multiple sections.*

3. Ratios, Proportions Growth

Ratio Comparison

To compare fractions $\frac{a}{b}$ and $\frac{c}{d}$: * Cross-multiply: Compare ad and bc . * If $ad > bc$, then $\frac{a}{b} > \frac{c}{d}$.

Successive Percentage Change

If a value changes successively by $a\%$ and $b\%$, the net effective change is:

$$\text{Net}\% = \left(a + b + \frac{ab}{100} \right) \%$$

4. Types of DI Graphs

Tables

* Rows and columns of data. * **Pro-Tip:** Look for row/column totals first to quickly spot missing data points or consistency.

Bar Graphs

* Compares discrete categories using rectangular bars. * **Pro-Tip:** Pay close attention to stacked bar charts where individual components sum up to a total.

Pie Charts

* Represents proportions of a whole (Total = 100% or 360°). * Conversion rule: $1\% = 3.6^\circ$.

$$\text{Value} = \left(\frac{\text{Angle}}{360^\circ} \right) \times \text{Total}$$

Line Graphs

* Tracks trends over continuous intervals (usually time). * **Pro-Tip:** Steeper slopes indicate rapid growth or decline.

Caselets

* Data presented in paragraph form without structured tables. * **Strategy:** Translate text into a matrix or Venn diagram immediately.

5. Growth Rates (CAGR)

Compound Annual Growth Rate is frequently tested in financial and economic DI sets:

$$\text{CAGR} = \left(\frac{\text{End Value}}{\text{Start Value}} \right)^{\frac{1}{n}} - 1$$

where n is the number of years.

6. Data Sufficiency Tactics

* **Step 1:** Analyze Statement I independently. *
* **Step 2:** Analyze Statement II independently. * **Step 3:** Combine if neither is sufficient alone. * **Watch out for:** Hidden constraints (e.g., population must be integers, prices must be positive).

7. Approximation Techniques

In competitive exams, exact calculation is rarely required. Master these approximation heuristics:

- **Rounding:** Round numbers to 2 or 3 significant digits before computing (e.g., $4892 \rightarrow 4900$).
- **Percentage Splitting:** Break complex percentages into manageable parts.
Example: 37% of 450 $\rightarrow (30\% + 5\% + 2\%)$ of 450.
- **Fractional Approximation:** If calculating $\frac{41}{312}$, approximate as $\frac{41}{315} = \frac{1}{7.68}$ or adjust numerator/denominator proportionally.

8. Golden Rules for DI Speed

1. **Read the footnotes:** Units (in thousands, millions, percentages vs. absolute values) change the answer by orders of magnitude.
2. **Scan the questions first:** Read the questions before staring at the data table to know exactly what metrics to extract.
3. **Eliminate options:** Use range estimation and unit digit matching to discard absurd choices quickly.
4. **Time Management:** Do not spend more than 3-4 minutes on a convoluted set; flag and move on.

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