Data Interpretation

What is DI

- Data Interpretation (DI) is the mathematical equivalent of Reading Comprehension.

- It deals with the understanding, organising and interpreting of the given data so as to arrive at meaningful conclusions

- 'Data' refers to facts associated with quantity.

- 'Interpretation' means perception, a view point, or an understanding

- 'Data Interpretation' in GRE is concerned with examining a comprehensive set of data relating to some quantities.

Success in DI

Success in DI depends on

- Your calculation prowess and
- Your ability to understand the question correctly
- Ability to understand what the graph represents.

In most cases, DI is just the use of common sense !!!

Some tips

- The DI section is not only about solving the questions accurately but also solving them quickly.

- You will be required to read data from the graphs and tables and then address the question that has been presented to you. It will be mentioned that the graphs are not drawn to scale, however they are quite accurate and you may pick up approximate values by studying the graphs carefully.

- Spend 15-30 seconds in the beginning to assimilate and make sense of the chart, graph or table. Make sure that you read all the information around it. Read the captions, notes, legends provided with the graphs.

- Before you tackle the questions, get a good sense for what the variables are and how they relate to one another.

Some tips

The following will be helpful -

* Be familiar with the mathematical tables of numbers (at least till 20),

* Have a fair knowledge of reciprocals, equivalent percentages and decimals

* Squares, Cubes and Square roots of standard numbers

Practice a variety of questions to become comfortable with different types of problems. This will help you develop understanding of methods you can apply to solve questions faster.

Exposure to diversity of question types is a must. It will ensure that the Questions in GRE do not come as a surprise to you.

- Be very thorough with the basics of all arithmetic topics like Profit, Loss, Ratios, Percentages, basic number theory and formulas.

- Make sure you have completed the Learning sessions of the above topics in the Arithmetic and Algebra module.

- Take the review tests in these sessions and analyse your performance. It will helps you to understand your strengths and weaknesses. The incorrect questions will help a lot in identifying where you tend to go wrong.

Tips for quick computation

- Learn short-cut methods that work for you. Also try doing mental calculations and minimise the use of pen and paper.

- Often you can arrive at the correct answer by the process of elimination. For some questions you may find that some of the given options are pretty far-fetched. Eliminating those will make it easy to select the right answer. Again, this method needs practice to perfect.

- Check to see if the question asks for an approximation. If so, you can safely estimate numbers by rounding off. Approximation is the best tool to arrive at answers quickly but using it is an art. You will have to learn this through trial-and-error and practice.

- When rounding off fractions, round the numerator and denominator <u>in the same direction</u> (either up or down); otherwise you'll distort the value of the fraction.

- Whenever you try to calculate faster than your comfort zone speed, you are bound to make silly mistakes. Try to build up your speed slowly so that it peaks up on your GRE.

- When possible, try to predict the result without performing actual computations or with very little calculations

- **Calculations:** Instead of wasting time in doing lengthy calculations, you must try to solve the questions using approximations.

- **Short cuts:** One must use shortcuts to save time while calculating. Here are two most widely used short cuts in DI:

i. Remember that if quantity X > quantity Y, and the question asks: *of what percent is quantity X of quantity Y,* then the answer must be greater than 100 percent

ii. Doubling the value of variable is equivalent to an increase of 100 per cent, tripling is equivalent to an increase of 200 per cent, quadrupling to 300 per cent and so on.

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iii. A% of B = B% of A

   Example if we need to determine 97.6% of 25

 (97.6% of 25) is same as (25% of 97.6)

which is same as   (25/100) x 97.6 = ¼ x 97.6

We know that ¼ of 100 is 25. So ¼ of 97.6 can be approx 24.

Pitfalls to be avoided

- **The catch**: There are certain traps in the DI questions which one must understand in order to counter them. These are

i. **Units:** Never ignore the units given for the variables (in million dollars, in thousands etc.). Sometimes the answer choices are arranged in such a way that there is always a strong possibility to pick up the wrong one if one does not consider units.

ii. **Variable**: Don't confuse "*change in the value of variable* (production /sales /profit etc)" with "*percentage change in the variable*".

You must understand that a change in the value is just the difference between the new and old value;

On the other hand, percentage change is given by

% age change = $\dfrac{(V2 - V1) \times 100\%}{V1}$

Classification of Graphs

Classification

- The questions in DI can be broadly classified as Tables, Graphs.

- TABLES: In this type of question the data is arranged systematically in rows and columns with captions/headings. A title that tells you what that table encompasses. Grand total figures could be provided in the table itself or separately. Units of measurement may also be given for calculations.

- Remember to carefully read all titles, subtitles, and notes/footnotes. If you do not interpret the data correctly, you might end up in incorrectly solving all the questions on that data.

Tables

- Example: the following table shows the averages of five batsmen over the period of five years.

AVERAGE OVER THE YEARS

	1998	1999	2000	2001	2002
Lara	41	39	22	65	45
Tendulkar	88	24	78	15	66
Laxman	7	77	81	41	25
Waugh	24	32	36	41	28
Dravid	32	33	34	35	36

Tips on Tables

While solving questions based on tabulated information, remember to:

a. Spend time understanding the table, especially the title, caption and unit of measurement. Don't waste time browsing through the data.

b. Read the question carefully and analyse the possible answer before calculation. Most of the questions only call for an approximate answer and it may be possible to round off, thus saving time and effort

c. Make sure to express your answer in the correct units. If the units of measurement in the question and given answer do not match then conversion is required.

Classification on Graphs

- GRAPHS: Unlike tables that depict data precisely, graphs give you a pictorial representation. So, you only get an approximate idea of data. However, the graphs are more vivid in depicting trends like growth, decline and plateaus. They can be of various types

- a. Bar Graphs

- b. Line Graphs

- c. Cumulative Bar Graph

- d. Pie Graph

- e. Combination Graph

Bar Graphs

- **Bar Graphs:** Bar graphs use two axes for representation of data. In the example below, the X-axis denotes the year and the Y-axis shows the average runs scored.

- A common difficulty is that the bars don't always have numbers on them and you have to figure out what the value is by matching up the bar with the Y-axis. It is possible to use the approximation method to hasten the calculation i.e. you can assume 41 to be 40.
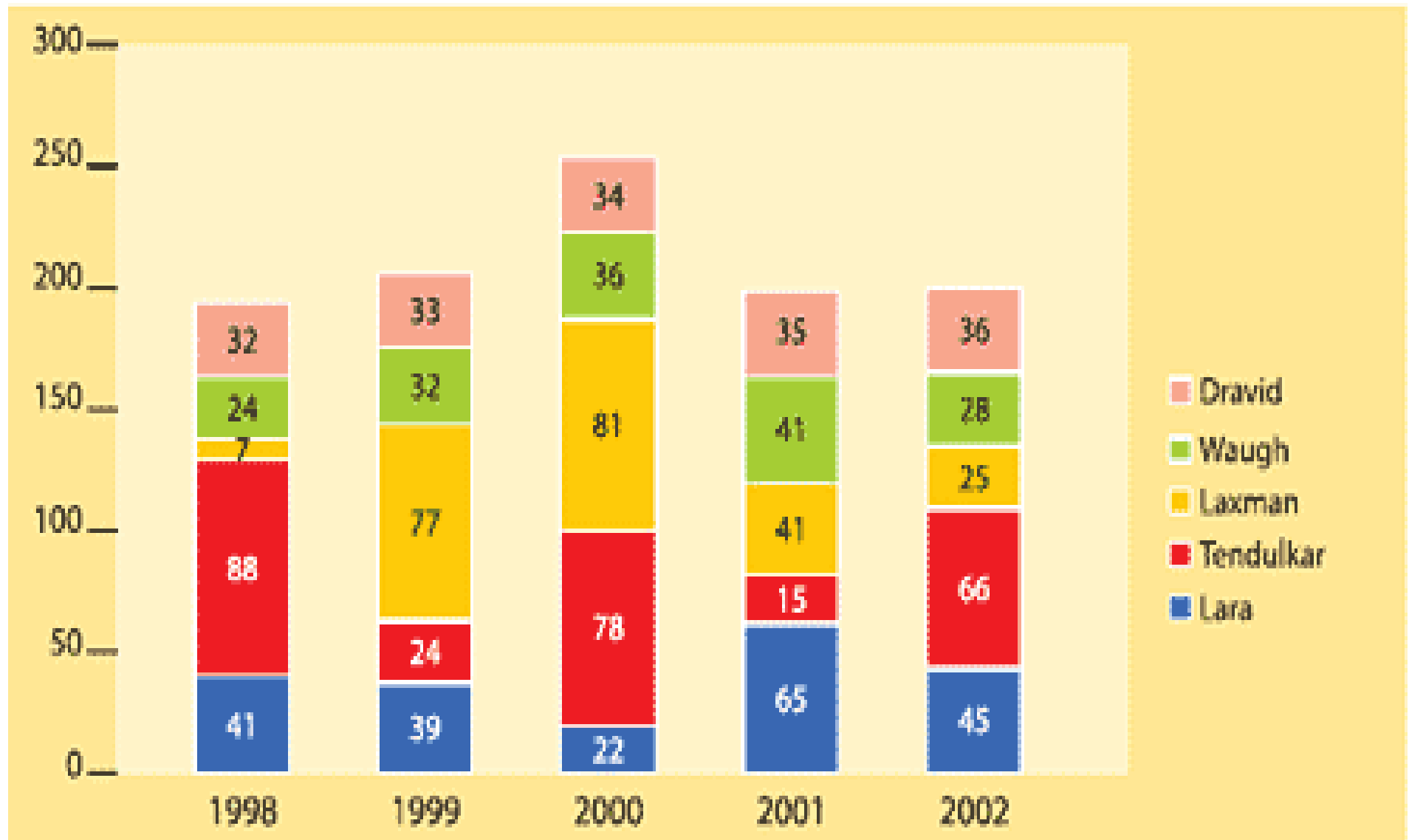
An Example
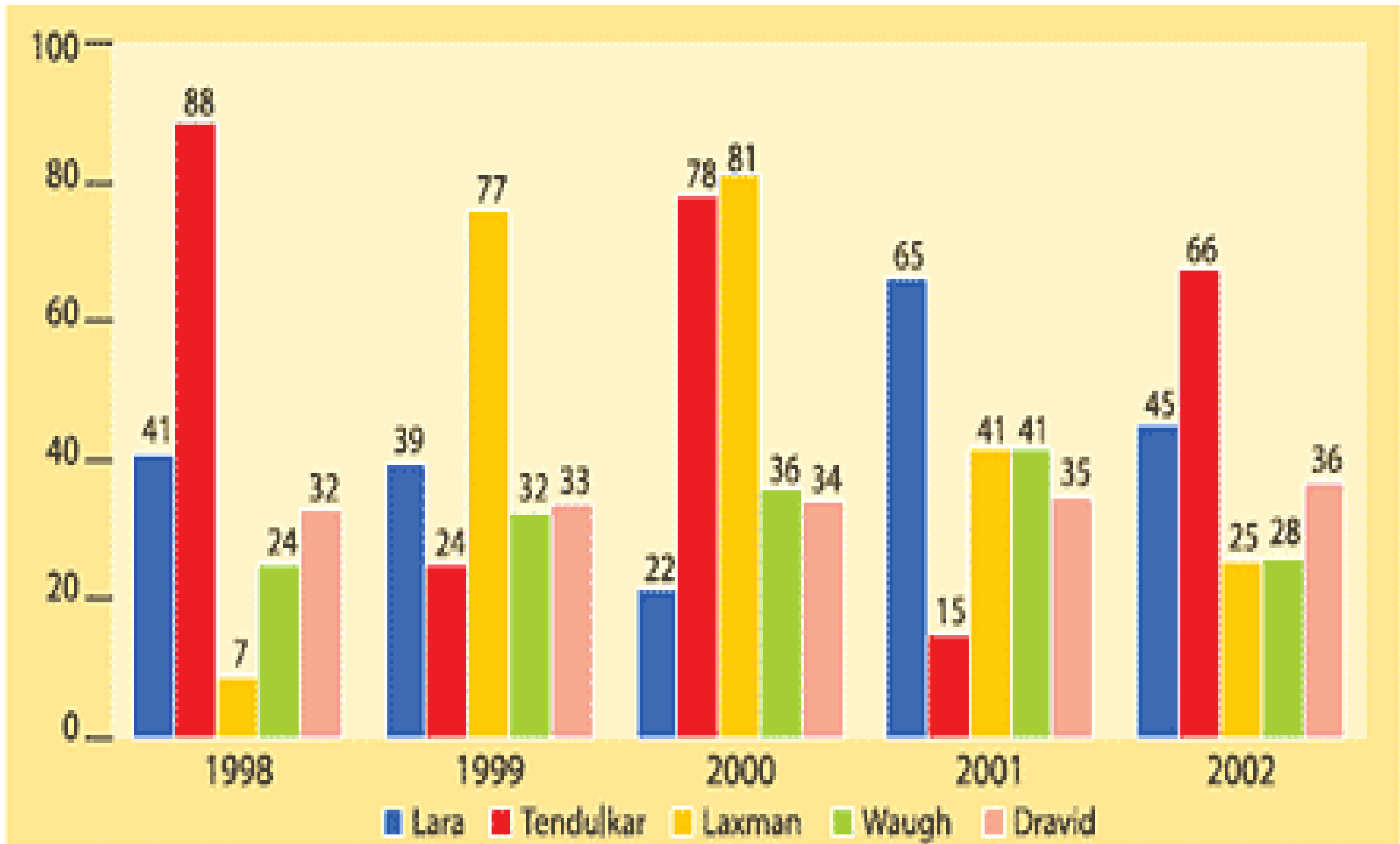
Stacked Graph

- **Stacked Graph/Cumulative Bar Graph:**

- In this type of a graph, the bar carries information of more than one parameters. The different parameters are stacked over the other for a particular year.

- This 'stack' can be expressed in percentage as well. When you add the percentages, in one year, it will add up to 100.
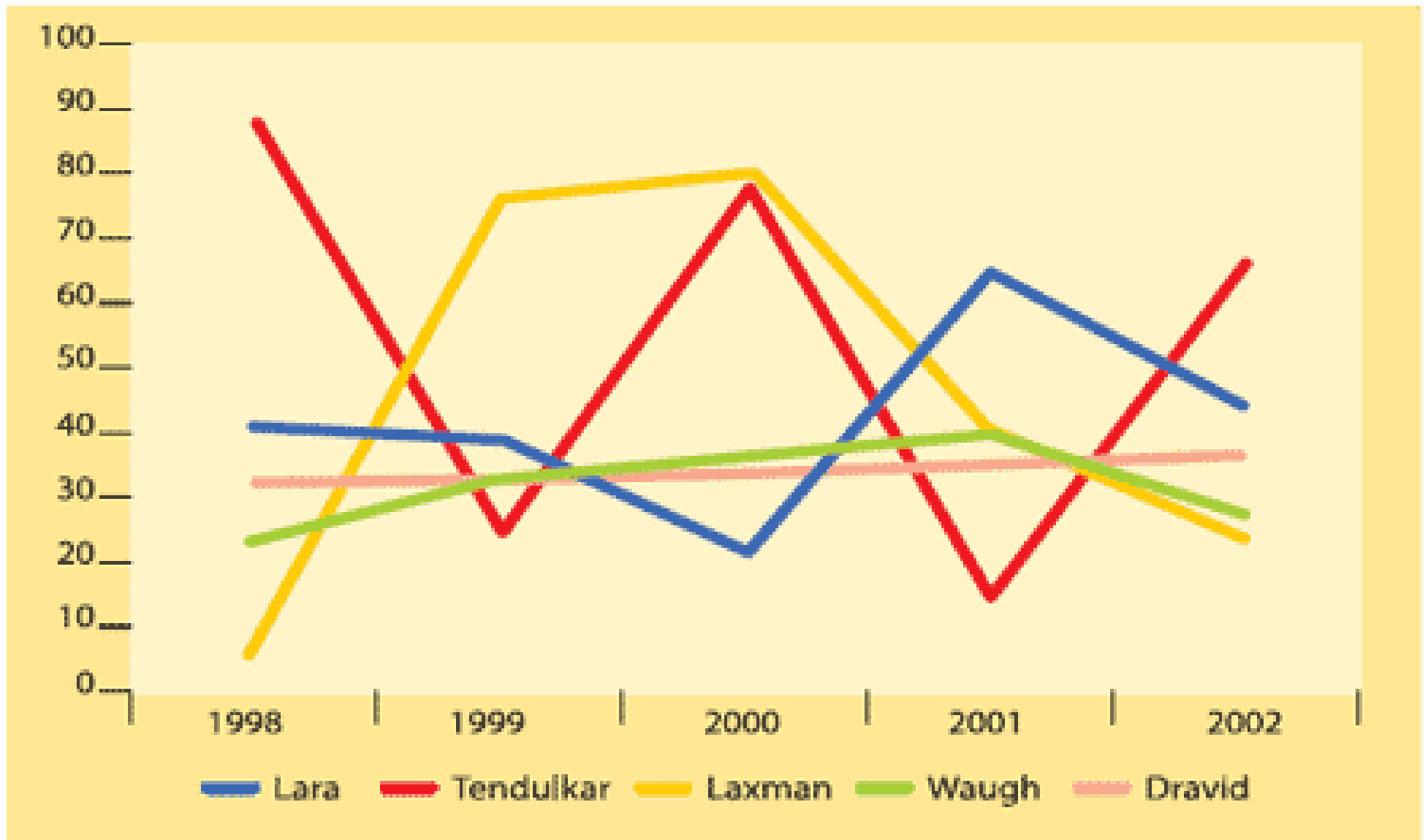
An Example

Line Graph

Line Graphs: In the example below, the various lines represent the players and their average scores. Line graphs show, most vividly, trends like growth and decline over a period of time.
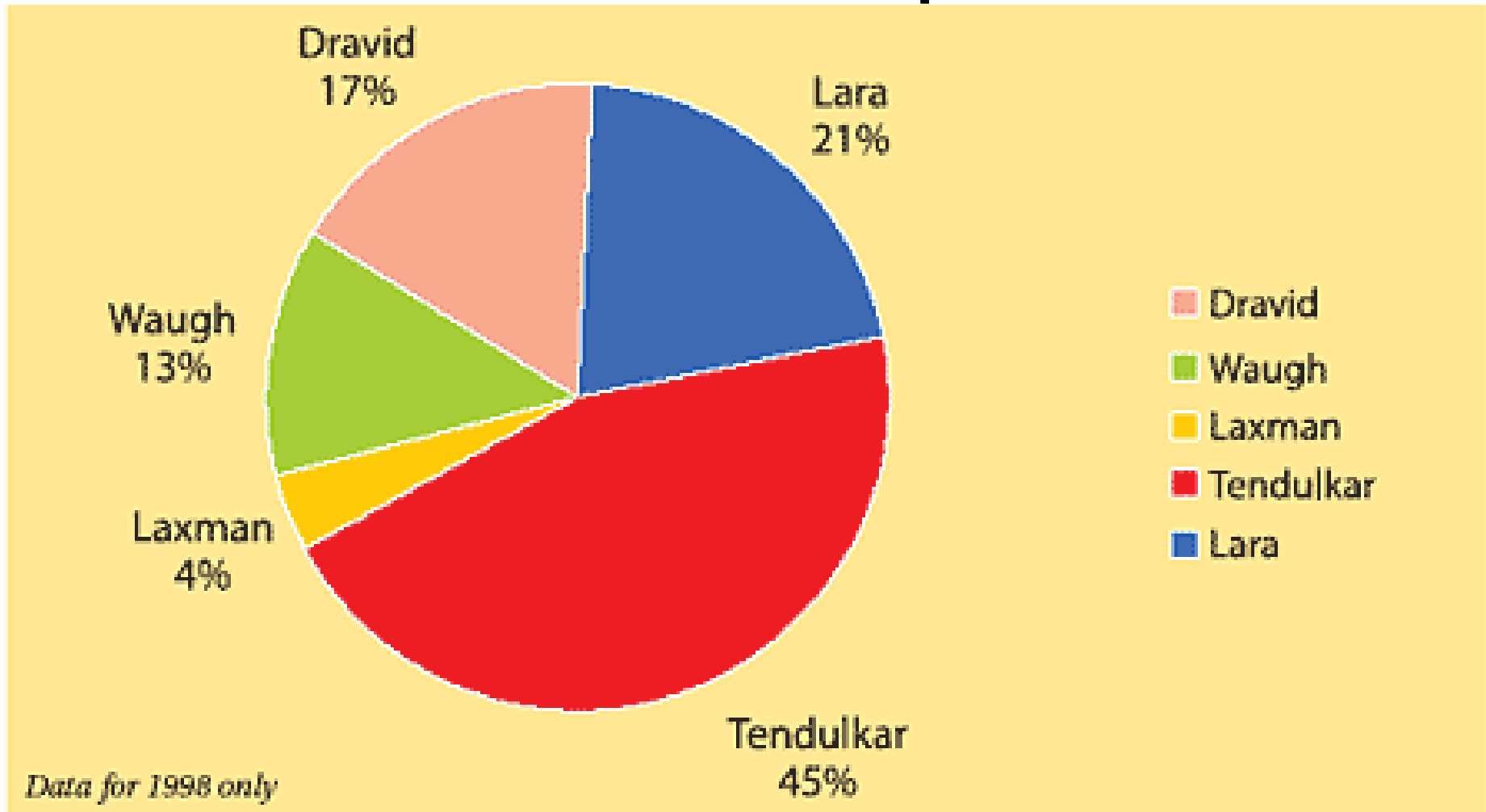
An Example

Pie Graph

- **Pie Graph:** The pie chart is a pie like representation of data, hence the name.

- In the graph below, the entire 'pie' is broken into percentages adding up to 100%.

- Remember that one percent = 3.6 degrees

An Example

Dravid 17%

Lara 21%

Waugh 13%

Laxman 4%

Tendulkar 45%

Legend: Dravid, Waugh, Laxman, Tendulkar, Lara

Data for 1998 only

Here in Pie chart, we observe that the graph is given for only one year

Combination Graph

- **Combination Graph:** Combination graphs combine data of one graph with that of another. These may look intimidating initially but can be tackled if taken one at a time and are rather easy.

- In gleaning data from a chart, graph or table, it's remarkably easy to inadvertently grab your data from the wrong graph, bar, line, etc. This is the main cause of incorrect responses in GRE Data Analysis. To avoid this blunder, point your finger to the data you want; put your finger directly against the computer screen and keep it there until you're sure you're looking at the right part of the right chart or graph.

Work on the following problems and send back your solutions to your SFA at

support@greedge.com

Also show your workings. It'll help your SFA to evaluate you better.

Worksheet - Easy

Year	1960	1970	1980
Number of students enrolled	1490	1600	1,790
Number of Faculty members	166	160	--
Ratio of students to faculty	--	10:1	11:1
Average Faculty Salary	--	$ 14,360	$28,400
Tuition Per student	$1,400	$2,000	$3,700
Total Faculty salaries	$1,245,000	--	$4,629,200
Income from Tuition	$2,086,000	$3,200,000	--

Worksheet – Easy (Level 1)

1. What was the total amount of faculty salaries at college R in 1970?

1. What was the Income from tuition gained by College R in 1980?

2. What was the number of faculties in the year 1980?

3. In which year, was the ratio of students to faculty is good?

4. What was the average salary received by a faculty in the year 1960?

Worksheet – Easy (Level 2)

1. The number of students enrolled in 1960 was approximately what fraction of the number enrolled in 1980?

   A. 8/9   B. 5/6   C. 2/3   D. 1/3   E. 1/5

2. The increase in tuition per student from 1970 to 1980 was approximately how many times as great as the increase from 1960 to 1970?

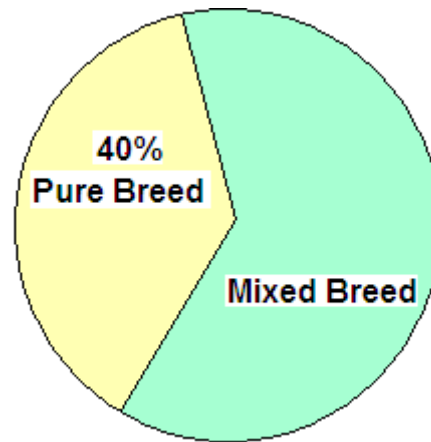   A. 3%   B. 0.3 times   C. 3 times D. 2/3 times   E. 2 times

Worksheet – Easy (Level 3)

1. If the increase in the number of students enrolled from 1950 to 1960 was half the increase from 1960 to 1970, what was the student enrolment in 1950?

2. If the total amount of faculty salaries in 1980 was paid from tuition income, approximately how much of each student's tuition was used to pay faculty salaries?
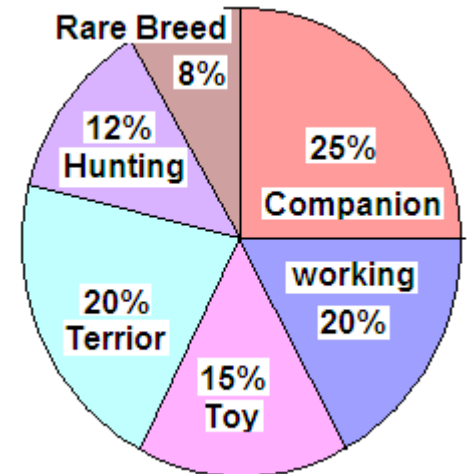
Worksheet - Medium

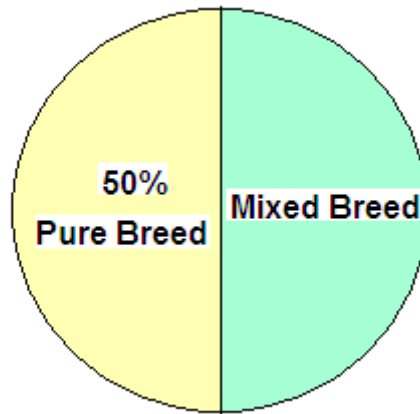## Distribution of the ASPCA registered dogs by breeding for two counties
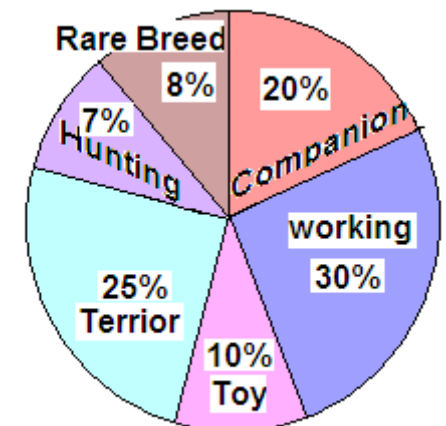
GREEN COUNTY
All ASPCA registered Dogs
Total = 30,000

40% Pure Breed

Mixed Breed

Pure Breed

Rare Breed 8%

12% Hunting

25% Companion

20% Terrior

15% Toy

working 20%

ROPE COUNTY
All ASPCA registered Dogs
Total = 50,000

50% Pure Breed

Mixed Breed

Pure Breed

Rare Breed 8%

7% Hunting

20%

Companion

25% Terrior

10% Toy

working 30%

Worksheet - Medium

1. How many more pure bred dogs are regd, with ASPCA in Rope county than in Green County?

      A. 9000   B. 11000 C. 13000 D. 15000 E. 17500

2. For Green county and Rope county combined approximately what percent of all dogs registered With ASPCA are mixed breed?   A. 22   B. 34   C. 44   D. 54   E. 60

3. Which of the following statements can be inferred from the graphs?

      I. More mixed bred dogs are regd with ASPCA in Green country than   in Rope county

   II. More rare bred dogs are in green county than in Rope county.

   III. In Rope county twice as many companion dogs are regd as toy   dogs

A. I & II & III   B. II only C. III only   D. I & III only E. II & III only

Worksheet - Medium

4. How many more terriers are registered with ASPCA in Rope county than in Green county?

   A. 2850   B. 3850   C.3000   D. 2400   E.6250

5. The toy dogs registered with ASPCA in Rope county are approximately how much percent more than that of those registered with ASPCA in Green county

   A.28   B. 30   C.40   D.52.   E.54

Worksheet - Hard

Total Enrolment Student
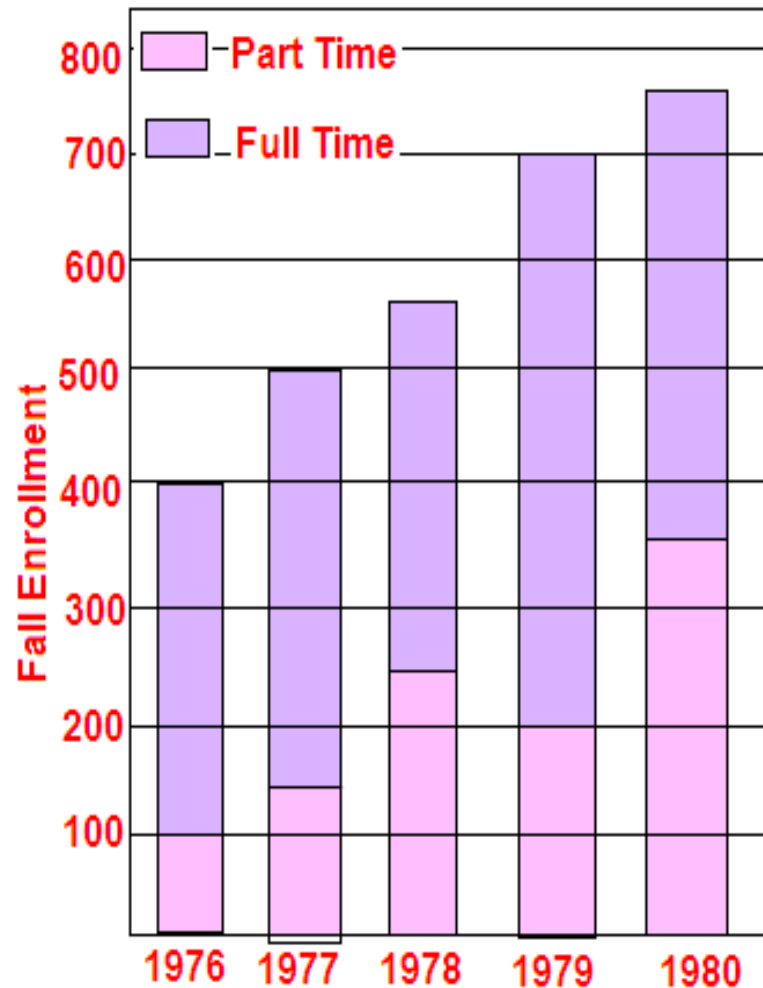
Allocation of All Contributions
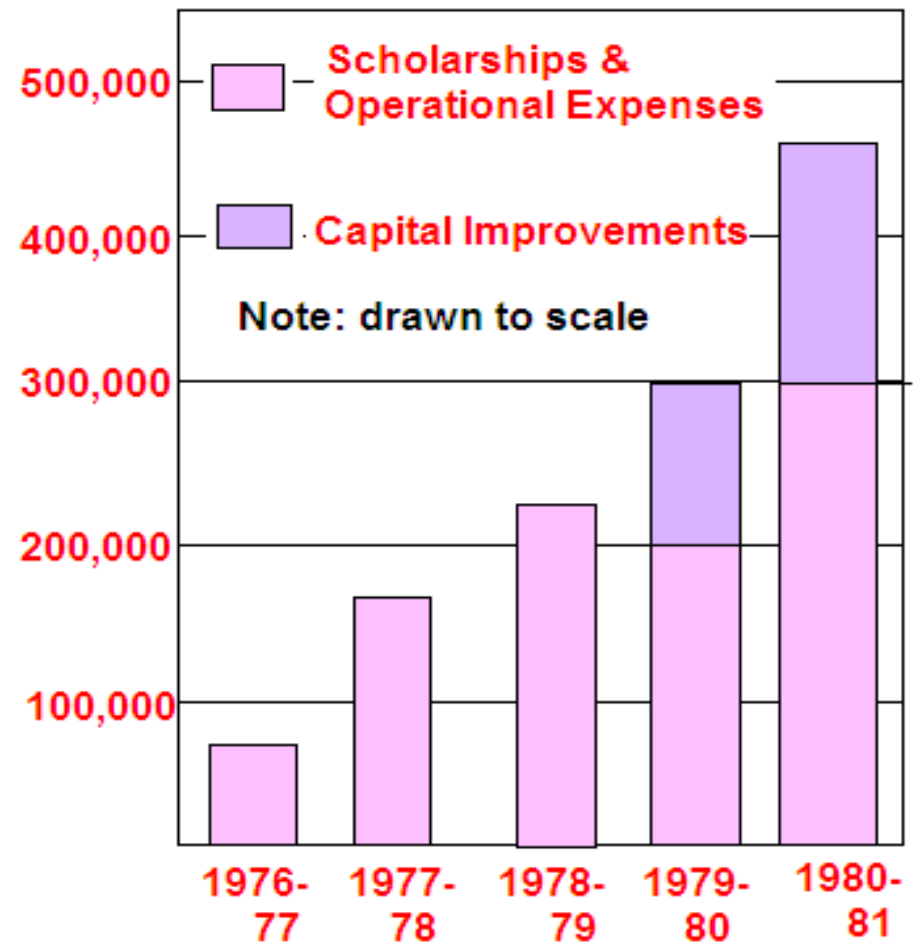
Worksheet - Hard

1. What was the total number of students enrolled at College R in the fall of 1979?

          A. 200   B. 250   C. 500   D. 650

   E. 700

2. By what percent did the number of part-time students enrolled increase from the fall of 1979 to the fall of 1980 ?

   A. 7%   B. 42%   C. 66 2/3%   D. 75% E. 80%

1. What was the increase, if any, in the number of full-time students enrolled at College R from the fall of 1976 to the fall of 1977?

   A. 0   B. 50   C. 100   D. 150   E. 200

Worksheet - Hard

4. In the 1978-1979 school year, if 12% of the amount of contributions allocated to scholarships and operational expenses was allocated to heating costs, approximately how much was NOT allocated to heating costs? A. $2,000 B. $25,000 C. $ 176,000 D.$205,000 E. $250,000

5. Approximately what was the total amount of contributions to College R from the year 1978-1979 school year through the 1980-1981 school year inclusive? A. $967,000 B. $ 1,000,000 C. $ 9,000,000

D. $ 9,667,000 E. $10,000,000