CareersValley Quantitative Aptitude Formulas Handbook

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Introduction (Why you should be reading this eBook):

Hi, This is Kamalkk Kannan, chief author of careersvalley.com. I am an young entrepreneur who graduated from Madras Institute of Technology, AnnaUniversity, Chennai (Same college where our former president Abdul Kalam had studied). Then I got an offer from Infosys Technologies where I worked for three years before starting my own company W2WIN Technologies. CareersValley.com is an educational and job search website founded by W2WIN.

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Quantitative Aptitude Formula Handbook

I. Arithmetic Progression.

Definition: If each term of a series differs from its preceding term by a constant, then such a progression is called **arithmetic progression**.

e.g: 2,5,8,11

In the above sequence the difference between any two terms in 3.

Formula:

Consider an AP : **a, (a + d), (a + 2d), (a + 3d),(a + 4d),....**

1) n th term of the above sequence = $T_n = a + (n - 1)d$

2) Sum to n no of terms $S_n = n / 2 (2a + (n - 1)d)$

3) Another formula for $S_n = n / 2 (\text{first term} + \text{last term})$

II. Geometric Progression.

Definition: Any progression or sequence with successive terms having a common ration is called **geometric progression**.

e.g: 2,4,8,16...

In the above sequence the common ratio is 2 for any two successive terms

Formula:

Consider a GP - **a, ar, ar2....** where a is the first term and r is the common ratio

4) n th term, $T_n = ar^{n-1}$

5) Sum to n terms, $S_n = a(1 - r^n)/(1-r)$

6) In case r lies between -1 and +1 then $\text{Sum of all terms of the series} = a/ (1 - r)$

III. HCF and LCM

7) Product of two numbers = Their HCF X Their LCM

IV. Surds and Indices

8) $a^m \times a^n = a^{m+n}$

9) $a^m \div a^n = a^{m-n}$

10) $(a^m)^n = a^{mn}$

11) $a^{\frac{1}{m}} = \sqrt[m]{a}$

12) $a^{-m} = \frac{1}{a^m}$

13) $a^{\frac{m}{n}} = \sqrt[n]{a^m}$

14) $a^0 = 1$

15) $\sqrt{a} + \sqrt{a} = 2\sqrt{a}$

16) $\sqrt{a} \times \sqrt{b} = \sqrt{ab}$

17) $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$

V. Percentages

18) How to express a/b as percentage?

Ans: (a/b) x 100

19) How to express a percentage of b?

Ans: (a/100) x b

20) If the price of an item increases by A%, then the reduction in consumption so as not to increase the expenditure is

Ans: A / (100 + A) x 100 %

21) If the price of an item decreases by A%, then the increase in consumption so as not to decrease the expenditure is:

Ans: A / (100 - A) x 100 %

VI.   Profit And Loss

22) Profit = **Selling Price - Cost Price**

23) Loss = **Cost Price - Selling Price**

24) Profit Percentage = **(Profit / Cost Price) x100**

25) Loss Percentage = **(Loss / Cost Price) x100**

VII.   Time And Work

26) N1 x R1 = N2 x R2 = W

Here: N = number of working men; R = rate of work done per man; D = days; W = total work done.

VIII.   Boats And Streams

Let b = boat speed, s = stream speed, d = distance and t = time

27) Smooth water equation

b = d / t

28) Upstream equation

b + s = d/t

29) Downstream speed.

b - s = d/t

IX.   Simple and Compound Interest

30) For Interest Compounded Annually
Total Amount = $P(1+(R/100))^n$

31) For Interest Compounded Half Yearly
Total Amount = $P(1+(R/200))^{2n}$

32) For Interest Compounded Quarterly

Total Amount = $P(1+(R/400))^{4n}$

33) **Simple Interest = (Principal X Rate X Time) / 100**

SI = PRT/100

Where P = capital amount, R = annual rate, T = time period in years