**Equations**

Important Formulae

1. (a + b)(a - b) = (a2 - b2)  
2. (a + b)2 = (a2 + b2 + 2ab)  
3. (a - b)2 = (a2 + b2 - 2ab)  
4. (a + b + c)2 = a2 + b2 + c2 + 2(ab + bc + ca)  
5. (a3 + b3) = (a + b)(a2 - ab + b2)  
6. (a3 - b3) = (a - b)(a2 + ab + b2)  
7. (a3 + b3 + c3 - 3abc) = (a + b + c)(a2 + b2 + c2 - ab - bc - ac)  
8. When a + b + c = 0, then a3 + b3 + c3 = 3abc

Solve the following questions mathematically and also try to write a program to get the answer.

1 Q) The sum of two numbers is 84, and one of them is 12 more than the other. What are the two numbers?

2 Q) The sum of two consecutive numbers is 37. What are they?

3 Q) A number decreased by half of the number is four. Find the number.

4 Q) The difference between three times a number and five is sixteen. Find the number.

5 Q) Divide Rs 80 among three people so that the second will have twice as much as the first, and the third will have Rs 5 less than the second.

6 Q). A man has some hens and cows. If the number of heads be 48 and the number of feet equals 140, then the number of hens will be:

7 Q) A sum of Rs. 1360 has been divided among A, B and C such that A gets http://www.indiabix.com/_files/images/aptitude/1-div-2by3.gif of what B gets and B gets http://www.indiabix.com/_files/images/aptitude/1-div-1by4.gif of what C gets. B's share is

8 Q) To fill a tank, 25 buckets of water is required. How many buckets of water will be required to fill the same tank if the capacity of the bucket is reduced to half of its present?

9 Q. The town newspaper is published every day. One copy has 16 pages. Everyday 14,950 copies are printed. How many total pages are printed everyday?

10 Q. The number of sheets of paper available for making notebooks is 90,000. Each sheet makes 12 pages of a notebook. Each notebook contains 300 pages. How many notebooks can be made from the paper available?

11. The cost of 2 books and 3 pens is 225, and the cost of 4 pens and 3 books is 320. What is the cost of one pen?

12. Sridhar bought an equal number of Rs 150 and Rs 200 tickets for a movie. He spent Rs 2100 to buy all the tickets. How many ticktes of each type did he buy?

13. The cost of 5 apples and 6 oranges is 108 and the cost of 6 apples and 5 oranges is 112. Find the total cost of an apple and an orange.

14. In an examination, a student scores 4 marks for every correct answer and loses 1 mark for every wrong answer. If he attempts all 75 questions and secures 125 marks, the number of questions he attempted correctly, is

15. If A = x% of y and B = y% of x, then which of the following is true?

A. A is greater than B B. A is smaller than B

C. Relationship between A and B cannot be determined. D. None of these

16. The salary of a person was first increased by 10% and later the same was reduced by 10%. What is the net change?

A. 1% Decrease B. 1% increase C. 11% increase D. Nil