

Simple Equations - Assignment

Data Sufficiency

Direction for questions 1 to 7: Each of these questions is followed by two statements, I and II. Mark the answer as

- a) if the question can be answered with the help of statement I alone.
- b) if the question can be answered with the help of statement II, alone.
- c) if both statement I and statement II are needed to answer the question.
- d) if the question cannot be answered even with the help of both the statements.

1. What is the value of x , if x and y are consecutive positive even integers?
 - a. $(x-y)^2 = 4$
 - b. $(x + y)^2 < 100$
2. What is the profit percentage?
 - a. The cost price is 80% of the selling price.
 - b. The profit is Rs. 50.
3. What is the price of Banana
 - a. With Rs. 84, I can buy 14 bananas and 35 oranges.
 - b. If price of bananas is reduced by 50%, then we can buy 48 bananas in Rs. 12.
4. How old is Sachin in 1997?
 - a. Sachin is 11 years younger than Anil whose age will be a prime number in 1998.
 - b. Anil's age was a prime number in 1996.
5. What is the value of x and y ?
 - a. $3x + 2y = 45$
 - b. $10.5x + 7y = 157.5$
6. What is the speed of the car?
 - a. The speed of a car is 10 (km/hr) more than that of a motorcycle.
 - b. The motorcycle takes 2 hr more than the car to cover 100 km.
7. What is the cost price of the chair?
 - a. The chair and the table are sold at profits of 15% and 20% respectively.
 - b. If the cost price of the chair is increased by 10% and that of the table is increased by 20%, the profit reduces by Rs. 20.

Level 1

- The length, breadth and height of a room are in the ratio 3:2:1. If the breadth and height are halved while the length is doubled, then the total area of the four walls of the room will
 - remain the same
 - decrease by 13.64%
 - decrease by 15%
 - decrease by 18.75%
 - decrease by 30%
- A telecom service provider engages male and female operators for answering 1000 calls per day. A male operator can handle 40 calls per day whereas a female operator can handle 50 calls per day. The male and the female operators get a fixed wage of Rs. 250 and Rs. 300 per day respectively. In addition, a male operator gets Rs. 15 per call he answers and a female operator gets Rs. 10 per call she answers. To minimize the total cost, how many male operators should the service provider employ assuming he has to employ more than 7 of the 12 female operators available for the job?
 - 15
 - 14
 - 12
 - 10
- On January 1, 2004 two new societies, S1, and S2, are formed, each with n members. On the first day of each subsequent month, S1 adds b members while S2 multiplies its current number of members by a constant factor r . Both the societies have the same number of members on July 2, 2004. If $b = 10.5n$, what is the value of r ?
 - 2.0
 - 1.9
 - 1.8
 - 1.7
- A rich merchant had collected many gold coins. He did not want anybody to know about them. One day, his wife asked, "How many gold coins do we have?" After pausing a moment, he replied, "Well! If I divide the coins into two unequal numbers, then 48 times the difference between the two numbers equals the difference between the squares of the two numbers." The wife looked puzzled. Can you help the merchant's wife by finding out how many coins the merchant has?
 - 96
 - 53
 - 43
 - none of these
- A piece of string is 40 centimeters long. It is cut into three pieces. The longest piece is 3 times as long as the middle-sized piece and the shortest piece is 23 centimeters shorter than the longest piece. Find the length of the shortest piece.
 - 27
 - 5
 - 4
 - 9
- Mayank, Mirza, Little and Jaspal bought a motorbike for \$60.00. Mayank paid one half of the sum of the amounts paid by the other boys. Mirza paid one third of the sum of the amounts paid by the other boys; and Little paid one fourth of the sum of the amounts paid by the other boys. How much did Jaspal have to pay?
 - 15
 - 13
 - 17
 - none of these

7. The owner of a local jewellery store hired 3 watchmen to guard his diamonds, but a thief still got in and stole some diamonds. On the way out, the thief met each watchman, one at a time. To each he gave $\frac{1}{2}$ of the diamonds he had then, and 2 more besides. He escaped with one diamond. How many did he steal originally?
- a) 40 b) 36 c) 25 d) none of these
8. Anita had to do a multiplication. Instead of taking 35 as one of the multipliers, she took 53. As a result, the product went up by 540. What is the new product?
- a)1050 b)540 c)1440 d) 1590
9. A change-making machine contains one-rupee, two-rupee and five-rupee coins. The total number of coins is 300. The amount is Rs. 960. If the numbers of one-rupee coins and two-rupee coins are interchanged, the value comes down by Rs. 40. The total number of five-rupee coins is
- a)100 b)140 c)60 d)150
10. A man invests Rs. 3,000 at the rate of 5% per annum. How much more should he invest at the rate of 8%, so that he can earn a total of 6% per annum? .
- a)Rs. 1,200 b) Rs. 1,300 c)Rs. 1,500 d)Rs. 2,000
11. Three consecutive positive even numbers are such that thrice the first number exceeds double the third by 2, then the third number is
- a)10 b)14 c)16 d)12
12. Two positive integers differ by 4 and sum of their reciprocals is $\frac{10}{21}$. Then one of the numbers is
- a)3 b)1 c)5 d)21
13. Out of two-thirds of the total number of basketball matches, a team has won 17 matches and lost 3 of them. What is the maximum number of matches that the team can lose and still win more than three fourths of the total number of matches, if it is true that no match can end in a tie? .
- a) 4 b) 6 c)5 d)3
14. The price of a Maruti car rises by 30% while the sales of the car come down by 20%. What is the percentage change in the total revenue?
- a) +4% b) +2% c) -4% d) -2%
15. A student instead of finding the value of $\frac{7}{8}$ of a number, found the value of $\frac{7}{18}$ of the number. If his answer differed from the actual one by 770, find the number.
- a)1584 b)2520 c)1728 d)1656

16. The average marks of a student in 10 papers are 80. If the highest and the lowest scores are not considered, the average is 81. If his highest score is 92, find the lowest.
- a)55 b) 60 c)62 d)Cannot be determined
17. A man earns $x\%$ on the first Rs. 2,000 and $y\%$ on the rest of his income. If he earns Rs. 700 from income of Rs. 4,000 and Rs. 900 from if his income is Rs. 5,000, find $x\%$.
- a)20% b)15% c)25% d) None of these
18. P, Q and R are three consecutive odd numbers in ascending order. If the value of three times P is 3 less than two times R, find the value of R.
- a) 5 b)7 c)9 d)11
19. A yearly payment to the servant is Rs. 90 plus one turban. The servant leaves the job after 9 months and receives Rs. 65 and a turban. Then find the price of the turban.
- a) Rs. 10 b) Rs. 15 c)Rs. 7.50 d)None of these

Level 2

1. A shop stores x kg of rice. The first customer buys half this amount plus half a kg of rice. The second customer buys half the remaining amount plus half a kg of rice. Then the third customer also buys half the remaining amount plus half a kg of rice. Thereafter, no rice is left in the shop. Which of the following best describes the value of x ?
- a) $2 \leq x \leq 6$ b) $5 \leq x \leq 8$ c) $9 \leq x \leq 12$ d) $11 \leq x \leq 14$ e) $13 \leq x \leq 18$
2. The price of Darjeeling tea (in rupees per kilogram) is $100 + 0.10n$, on the n th day of 2007 ($n = 1, 2, \dots, 100$), and then remains constant. On the other hand, the price of Ooty tea (in rupees per kilogram) is $89 + 0.15n$, on the n th day of 2007 ($n = 1, 2, \dots, 365$). On which date in 2007 will the prices of these two varieties of tea be equal?
- a) May 21 b) April 11 c) May 20 d) April 10 e) June 30
3. Ten years ago, the ages of the members of a joint family of eight people added up to 231 years. Three years later, one member died at the age of 60 years and a child was born during the same year. After another three years, one more member died, again at 60, and a child was born during the same year. The current average age of this eight member joint family is nearest to:
- a) 23 years b) 22 years c) 21 years d) 25 years e) 24 years

4. An airline has a certain free luggage allowance and charges for excess luggage at a fixed rate per kg. Two passengers, Raja and Praja have 60 kg of luggage between them, and are charged Rs. 1200 and Rs. 2400 respectively for excess luggage. Had the entire luggage to one of them, the excess luggage charge would have been Rs. 5400. What is the weight of Praja's luggage?
- a) 20 kg b) 25 kg c) 30 kg d) 35 kg e) 40 kg
5. What is the free luggage allowance?
- a) 10 kg b) 15 kg c) 20 kg d) 25 kg e) 30 kg
6. In an examination, there are 100 questions divided into three groups A, B and C such that each group contains at least one question. Each question in group A carries 1 mark, each question in group B carries 2 marks and each question in group C carries 3 marks. It is known that the questions in group A together carry at least 60% of the total marks. If group B contains 23 questions, then how many questions are there in group C?
- a) 1 b) 2 c) 3 d) Cannot be determined
7. If group C contains 8 questions and group B carries at least 20% of the total marks, which of the following best describes the number of questions in group B?
- a) 11 or 12 b) 12 or 13 c) 13 or 14 d) 14 or 15
8. 3 pieces of cakes of $4\frac{1}{2}$, $6\frac{3}{4}$, $7\frac{1}{5}$ weights are to be divided into equal parts. Each part must be as heavy as possible. If one such part is served to each guest, then what is the minimum no. of guests that could be served?
- a) 54 b) 72 c) 20 d) None of these
9. Three friends, returning from a movie, stopped to eat at a restaurant. After dinner, they paid their bill and noticed a bowl of mints at the front counter. Sean took $\frac{1}{3}$ of the mints, but returned four because he had a momentary pang of guilt. Faizah then took $\frac{1}{4}$ of what was left but returned three for similar reasons. Eugene then took half of the remainder but threw two that looked like they had been slobbered on back into the bowl. (He felt no pangs of guilt - he just didn't want slobbered-on mints.) The bowl had only 17 mints left when the raid was over. How many mints were originally in the bowl?
- a) 38 b) 31 c) 41 d) None of these
10. Three classes X, Y and Z take an algebra test.
- The average score in class X is 83.
The average score in class Y is 76.
The average score in class Z is 85.
The average score of all students in classes X and Y together is 79.

The average score of all students in classes Y and Z together is 81.
What is the average for all the three classes?

- a) 81 b) 81.5 c) 82 d) 84.5

11. Three runners A, B and C run a race, with runner A finishing 12 m ahead of runner B and 18 m ahead of runner C, while runner B finishes 8 m ahead of runner c) Each runner travels the entire distance at a constant speed. What was the length of the race?

- a) 36 m b) 48 m c) 60 m d) 72 m

Answer Questions 12 to 15 Based on below data

Four sisters Suvarna, Tara, Uma and Vibha are playing a game such that the loser doubles the money of each of the other players from her share. They played four games and each sister lost one game in alphabetical order. At the end of fourth game, each sister had Rs. 32.

12. How many rupees did Suvarna start with?

- a) Rs. 60 b) Rs. 34 c) Rs. 66 d) Rs. 28

13. Who started with the lowest amount?

- a) Suvarna b) Tara c) Uma d) Vibha

14. Who started with the highest amount?

- a) Suvarna b) Tara c) Uma d) Vibha

15. What was the amount with Uma at the end of the second round?

- a) 36 b) 72 c) 16 d) None of these

16. 72 hens cost Rs. 96.7 . Then what does each hen cost, where two digits in place of " " are not visible or are written in illegible hand?

- a) Rs. 3.23 b) Rs. 5.11 c) Rs. 5.51 d) Rs. 7.22

17. A person who has a certain amount with him goes to market. He can buy 50 oranges or 40 mangoes. He retains 10% of the amount for taxi fares and buys 20 mangoes and of the balance he purchases oranges. Number of oranges he can purchase is

- a) 36 b) 40 c) 15 d) 20

18. $\frac{2}{5}$ of the voters promise to vote for P and the rest promised to vote for Q. Of these, on the last day 15% of the voters went back of their promise to vote for P and 25% of

voters went back of their promise to vote for Q, and P lost by 2 votes. Then the total number of voters is
a) 100 b) 110 c) 90 d) 95

Answer Questions 19 and 20 based on below data

A watch dealer incurs an expense of Rs. 150 for producing every watch. He also incurs an additional expenditure of Rs. 30,000, which is independent of the number of watches produced. If he is able to sell a watch during the season, he sells it for Rs. 250. If he fails to do so, he has to sell each watch for Rs. 100.

19. If he is able to sell only 1,200 out of 1,500 watches he has made in the season, then he has made a profit of

a) Rs. 90,000 b) Rs. 75,000 c) Rs. 45,000 d) Rs. 60,000

20. If he produces 1,500 watches, what is the number of watches that he must sell during the season in order to break-even, given that he is able to sell all the watches produced?

a) 500 b) 700 c) 800 d) 1,000

21. Once I had been to the post office to buy five-rupee, two-rupee and one-rupee stamps. I paid the clerk Rs. 20, and since he had no change, he gave me three more one-rupee stamps. If the number of stamps of each type that I had ordered initially was more than one, what was the total number of stamps that I bought?

a)10 b) 9 c) 12 d) 8

Answer Questions 22 and 23 based on below data

A salesman enters the quantity sold and the price into the computer. Both the numbers are two-digit numbers. But, by mistake, both the numbers were entered with their digits interchanged. The total sales value remained the same, i.e. Rs. 1,148, but the inventory reduced by 54.

22. What is the actual price per piece?

a)Rs. 82 b) Rs. 41 c) Rs. 6 d) Rs. 28

23. What is the actual quantity sold?

a)28 b) 14 c) 82 d) 14

24. P and Q are two positive integers such that $PQ = 64$. Which of the following cannot be the value of $P + Q$?

a)20 b) 65 c) 16 d) 35

Directions for question 25 to 27: Answer the questions based on the following data

A, B, C and D collected one-rupee coins following the given pattern.

Together they collected 100 coins.

Each one of them collected even number of coins.

Each one of them collected at least 10 coins.

No two of them collected the same number of coins.

25. The maximum number of coins collected by any one of them cannot exceed
- a) 64 b) 36 c) 54 d) None of these
26. If A collected 54 coins, then the difference in the number of coins between the one who collected maximum number of coins and the one who collected the second highest number of coins must be at least
- a) 12 b) 24 c) 30 d) None of these
27. If A collected 54 coins and B collected two more coins than twice the number of coins collected by C, then the number of coins collected by B could be
- a) 28 b) 20 c) 26 d) 22

Level 3

1. Three consecutive positive integers are raised to the first, second and third powers respectively and then added. The sum so obtained is a perfect square whose square root equals the total of the three original integers. Which of the following best describes the minimum, say m , of these three integers?
- a) $1 \leq m \leq 3$ b) $4 \leq m \leq 6$ c) $7 \leq m \leq 9$ d) $10 \leq m \leq 12$ e) $13 \leq m \leq 15$
2. A confused bank teller transposed the rupees and paise when he cashed a cheque for Shailaja, giving her rupees instead of paise and paise instead of rupees. After buying a toffee for 50 paise, Shailaja noticed that she was left with exactly three times as much as the amount on the cheque. Which of the following is a valid statement about the cheque amount?
- a. Over Rupees 13 but less than Rupees 14
b. Over Rupees 7 but less than Rupees 8
c. Over Rupees 22 but less than Rupees 23
d. Over Rupees 18 but less than Rupees 19
e. Over Rupees 4 but less than Rupees 5
3. At a certain fast food restaurant, Brian can buy 3 burgers, 7 shakes, and one order of fries for Rs. 120 exactly. At the same place it would cost Rs. 164.5 for 4 burgers, 10

shakes, and one order of fries. How much would it cost for an ordinary meal of one burger, one shake, and one order of fries?

- a) Rs. 31 b) Rs. 4 c) Rs. 21 d) Cannot be determined

4. I bought 5 pens, 7 pencils and 4 erasers. Rajan bought 6 pens, 8 erasers and 14 pencils for an amount which was half more what I had paid. What per cent of the total amount paid by me was paid for the pens?

- a) 37.5% b) 62.5% c) 50% d) None of these

5. In a mile race, Akshay can be given a start of 128 m by Bhairav. If Bhairav can give Chinmay a start of 4 m in a 100 m dash, then who out of Akshay and Chinmay will win a race of one and half miles, and what will be the final lead given by the winner to the loser? (One mile is 1,600 m.)

- a. Akshay, $(1/12)$ mile
b. Chinmay, $(1/32)$ mile
c. Akshay, $(1/24)$ mile
d. Chinmay, $(1/16)$ mile

6. My son adores chocolates. He likes biscuits. But he hates apples. I told him that he can buy as many chocolates he wishes. But then he must have biscuits twice the number of chocolates and should have apples more than biscuits and chocolates together. Each chocolate cost Re 1. The cost of apple is twice the chocolate and four biscuits are worth one apple. Then which of the following can be the amount that I spent on that evening on my son if number of chocolates, biscuits and apples brought were all integers?

- a) Rs. 34 b) Rs. 33 c) Rs. 8 d) None of these

7. The total cost of 2 pencils, 5 erasers and 7 sharpeners is Rs.30, while 3 pencils and 5 sharpeners cost Rs.15 more than 6 erasers. By what amount (in Rs.) does the cost of 39 erasers and 1 sharpener exceed the cost of 6 pencils?

- a) 20 b) 30 c) It does not exceed d) Cannot be determined