

Number system

Number System



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Placement for All.. All for Placement

This Video Completely covers the problems on "Number System" which is more than sufficient for all kind of placement Exams eg: TCS/WIPRO/AMCAT/ELITMUS/CoCubes and all other placement Exams.

Number System by : Pratik Shrivastava (10 years of industry experience and best Aptitude trainer)

[Number System]

Q1. $\frac{2}{3}$ of three-fourth of a number is ? ✓✓

a. $\frac{1}{2}$ of the number b. $\frac{1}{3}$ of the number c. $\frac{8}{9}$ of the number d. $\frac{17}{12}$ of the number

Solution:

$$\Rightarrow \frac{2}{3} \times \frac{3}{4} \times N \checkmark$$

$\frac{1}{2}$ of N

Number System

Q2. Which of the following fraction is the smallest and which is highest?

$\frac{7}{6}, \frac{7}{9}, \frac{4}{5}, \frac{5}{7}$

Solution:

Smallest - $\frac{5}{7}$

highest - $\frac{7}{6}$

Handwritten calculations for comparing fractions:

$\frac{7}{9} \approx 0.8$ (circled)
 $\frac{4}{5} = 0.8$ (circled)
 $\frac{5}{7} \approx 0.7$ (circled)
 $\frac{7}{6} \approx 1.16$ (circled)

Handwritten comparison of fractions:

$\frac{7}{6}, \frac{7}{9}, \frac{4}{5}, \frac{5}{7}$ (circled)
↓
highest

Handwritten calculations for comparing fractions:

$\frac{7}{6} \approx 1.16$
 $\frac{7}{9} \approx 0.77$
 $\frac{4}{5} = 0.8$
 $\frac{5}{7} \approx 0.71$

Number System

Q3. A man spends $\frac{1}{4}$ th of his income on food, $\frac{2}{3}$ rd of it on house rent and the remaining income which is Rs. 630 on the other commodities. Find his house rent.

a. Rs. 5040 b. Rs. 3520 c. Rs. 4890 d. Rs. 4458

Solution:

(LCM of 4, 3 = 12) 12rs

$\frac{1}{4} \rightarrow$ food

$\frac{2}{3} \rightarrow$ Rent

$12 \times \frac{1}{4} = 3\text{rs food}$

$12 \times \frac{2}{3} = 8\text{rs food Rent}$

$12\text{rs} - (3\text{rs} + 8\text{rs}) = 12 - 11 = 1\text{rs}$

630

1rs — 630 ✓

8 — 630×8

= 5040

Number System

Q4. How many natural numbers divisible by 7 are there between 3 and 200?

a. 27 b. 28 c. 29 d. 36

Solution:

* 3, 4, 5, 6, 7, 8, 9 - - - - - 195, 196, 197, 198, 199, 200

No. of terms.

$\Rightarrow \frac{(l - a)}{\text{diff}} + 1$

$\frac{196 - 7}{7} + 1$

$\frac{189}{7} + 1$

$27 + 1 = 28$

$\Rightarrow 7, 14, 21, 28 \dots 196$

$\frac{196}{7} = 28$

$196 = 14^2$

$\frac{14 \times 14}{7} = 28$

Number System

Q5. The difference between a two-digit number and the number obtained by interchanging the two digits of the numbers is 36. What is the difference between the two digits of the number?

1) 6 2) 4 3) 3

4) Cannot be determined 5) none of these

Solution:

Two digit no = xy ✓

or

$\Rightarrow 10x + y - (10y + x) = 36$

$10x + y - 10y - x = 36$

$9x - 9y = 36$

$x - y = \frac{36}{9} \Rightarrow x - y = 4$ ✓

$10x + y$
 $10y + x$

$10x + y$ ✓

34 - two digit no

$10 \times 3 + 4$

Place

134

Unit digit

tens digit

100 digit

Number System

Q6 When a number is divided by 56 the remainder obtained is 29. What will be the remainder when the number is divided by 8.

- a.4 b.5 c.3 d.7

Solution:

10 sec ✓ Trick

$$\text{Remainder } \frac{29}{8} = 5$$

Number System

Q7 800 chocolates were distributed among the students of a class. Each student got twice as many chocolates as number of students in the class. The number of students in the class is?

- 1) 25 2) 30 3) 35
4) 20 5) none of these

Solution:

2 × 20 = 40 Let us assume

$$20 \times 40 = 800$$

option 1-2
 $30 \times 60 = 1800$
1 student, 2
No. of student = $x \geq 20$

total no of chocolates = $x \times 2x$

$$\Rightarrow 800 = x \times x$$

$$x^2 = 400$$

$$x = 20$$

Number System

Q8 A number of friends decided to go on picnic and planned to spend Rs. 108 on eatables. Three of them however did not turn up. As a consequence each one of the remaining had to contribute Rs. 3 extra. The number of them who attended the picnic was?

- 1) 15 2) 12 3) 9
4) 6 5) none of these

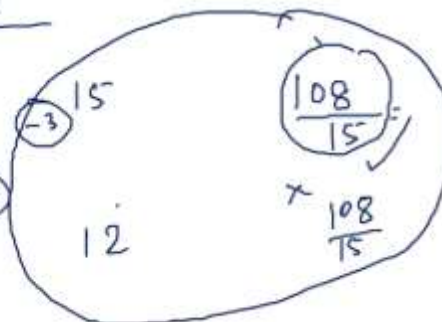
Solution:

Option (Easy)

3

$$12 \text{ planned} = \frac{108}{12} = 9 \text{ rs}$$

$$9 \text{ picnic} = \frac{108}{9} = 12 \text{ rs}$$



Number System

Q9. In a three digit number, the digit at hundred's place is two times the digit at the unit's place and the sum of the digits is 18. If the digits are reversed the number is reduced by 396. The Difference of hundred's and ten's digit of the number is:

- 1) 1 2) 2 3) 3
4) 5 5) none of these

Solution:

3 digit no: \overline{xyz} $\begin{matrix} 100x + 10y + z \\ 123 \end{matrix}$ $\begin{matrix} 123 \\ \text{unit} \\ \text{tens} \\ \text{hundred} \end{matrix}$

$x+y+z=18$
 $8+y+4=18$
 $y=18-12=6$ ✓

after reversing $100z + 10y + x$

$(100x + 10y + z) - (100z + 10y + x) = 396$ ✓

$2012 - 1022 = 396$
 $99z = 396$
 $z = \frac{396}{99} = 4$ ✓

$2-4 = -2$

$2002 + 10y + z - 100z - 10y - 2 = 396$

Number System

Q10. The smallest number, which should be added to 756896 so as to obtain a multiple of 11, is:

- a.1 b.2 c.3 d.5

Solution:

$22 - 19 = 3$ ✓

$(7+6+9) - (5+8+6) = 3$

$22 - 22 = 0$ or 11 ✓

756896
 $+3$
 756899
 $22 - 22 = 0$ ✓

tech: $\frac{2-2=0}{11}$

diff of sum of alternate $\frac{22}{11}$
 $\frac{10 \text{ or } 11}{\text{factors of } 11}$

(133)
 $\text{diff } (4-4) = 0$ ✓

Number System

Q11. The number 2272 and 875 are divided by a 3 digit number N, giving the same remainders. The sum of digits of N is:

- a.10 b.11 c.12 d.13

Solution:

remainder = x

$\frac{2272 - x}{N}$ $\frac{875 - x}{N}$

concept: $2272 - 875 = 1397$

$1397 = 127 \times 11$

3-digit no: 127 ✓

4-digit: 1397

eg: $\frac{7}{2}$ ✓ $\frac{9}{2}$ ✓
 $7-1=6$ $9-1=8$
 1 1
 2 2

Number System

Q12. Find the least number of 5 digits which is divisible by 333.

- a. 10328 b. 10323 c. 10333 d. 10332

Solution:

$$\begin{array}{r} 10333 - 10 \\ \hline 333 \\ \hline 10323 \end{array}$$

$$\begin{array}{r} 333 \overline{) 10333} \\ \underline{999} \\ 343 \\ \underline{333} \\ 10 \end{array}$$

$$\begin{array}{r} 2 \overline{) 94} \\ \underline{8} \\ 14 \\ \underline{12} \\ 2 \end{array}$$

$$\frac{(9-1)}{2} = \frac{8}{2} = 4$$

Number System

Q13. A man ate 100 grapes in 5 days. Each day, he ate 6 more grapes than those he ate on earlier day. How many grapes did he eat on the first day?

- a. 8 b. 12 c. 54 d. 76

Solution:

$$\text{first: } G$$

$$\Rightarrow (G) + (G+6) + (G+12) + (G+18) + (G+24) = 100$$

$$5G + 60 = 100$$

$$5G = 100 - 60 = 40$$

$$G = \frac{40}{5} = 8$$

$$8 + 14 + 20 + 26 + 32 = 100$$

Number System

Q14. What least number must be assigned to * so that the number 63576*2 is divisible by 8?

- a. 3 b. 5 c. 7 d. 8

Solution:

$$\begin{array}{r} 6357632 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 63576*2 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 240248 \\ \hline 248 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 8 \overline{) 632} \\ \underline{56} \\ 72 \\ \underline{72} \\ 0 \end{array}$$

$$\begin{array}{r} 632 \\ \hline 8 \end{array}$$

Number System

Q15. The multiplication of the product is

$$3 \times 38 \times 537 \times 1256$$

a. 7,68,89,808 b. 7,68,89,802 c. 7,68,89,804 d. 7,68,89,806

Solution:

last/unit digit concept

$$12 \times 2 \times 2 = 48 \quad \text{8}$$

$$\approx 3 \times 38 \times 537 \times 1256$$

24 28 48

Number System

Q16. There are 50 boxes and 50 persons. Person 1 keeps 1 marble in every box, person 2 keeps 2 marbles in every 2nd box, person 3 keeps 3 marbles in every 3rd box. This process goes on till person 50 keeps 50 marbles in the 50th box. Find the total number of marbles kept in the 50th box.

a. 43 b. 78 c. 6 d. 93

Solution:

	1	2	3	4	5	6	...	50
1st person:	1	1	1	1	1	1	...	1
2nd person:	x	2	x	2	x	2	...	2
3rd person:	x	x	3	x	x	3	...	3

1 + 2 + 3 + ... + 50 = 1275

1 + 2 + 5 + 10 + 25 + 50 = 93

OnlineStudy4u: A Complete Placement Solution

Number System

Q17. In a two digit number, tens digit is four more than unit digit, and sum of two digit number is 1/7 times of that number. Find out the unit digit of that number?

a. 5 b. 4 c. 3 d. 1

Solution:

two digit no = $10x + y$

$$10x + y$$

$$x = y + 4$$

$$(x + y) = \frac{1}{7} (10x + y)$$

$$7(y + 4 + y) = (10(y + 4) + y)$$

$$14y + 28 = 10y + 40 + y$$

$$14y - 11y = 40 - 28$$

$$3y = 12$$

$$y = 4$$

unit digit
tens digit

Number System

Q18. The smallest whole number that is to be multiplied with 59535 to make a perfect square number is x. The sum of digits of that number is?

- a. 5 b. 6 c. 7 d. 8

Solution:

Simple

$$59535 \times x$$

Sum of x

$$\begin{array}{r} 15 \\ 1+5=6 \end{array}$$

$$59535 = 3 \times 3 \times 3 \times 3 \times 5 \times 7 \times 7 \times 3$$

$$59535 \times 15 = 3 \times 3 \times 3 \times 3 \times 5 \times 7 \times 7 \times 3 \times 3$$

$$\begin{array}{r} 59535 \\ \times 15 \\ \hline 297675 \\ + 595350 \\ \hline 893025 \end{array}$$

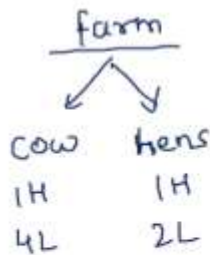
Number System

Q19. In a farm there are cows and hens. If heads are counted there are 180, if legs are counted there are 420. The number of cows in the farm is?

- a. 130 b. 50 c. 150 d. 30

Solution:

$$\begin{array}{l} \text{Let no. of hen} = h \\ \text{no. of cow} = c \end{array}$$



$$c + h = 180 \quad (1) \quad 4c + 2h = 420 \quad (2)$$

$$\begin{array}{r} 4c + 2h = 420 \\ 2c + h = 360 \\ \hline 2c = 60 \end{array}$$

$$2c = 60 \Rightarrow c = 30$$

Number System

Q20. In a Parking lot there are two types of vehicle, two whellers and four whellers. The total number of the vehicles in the parking lot is 200. when the number of the wheels of all the vehicles is counted, it is counted to be 580. Find the total number of the four whellers vehicle in the parking lot.

- a. 110 b. 90 c. 100 d. 180

Solution:

Parking lot (200)

Total no. of wheels = 580

option attack

$$90 \text{ four whellers} = 90 \times 4 = 360$$

$$110 \text{ two whellers} = 110 \times 2 = 220$$

$$360 + 220 = 580$$

$$\begin{array}{r} \text{Two whell} = (200 - 90) \\ 110 \end{array}$$