Problems on number Questions for CDS, SSC and Railway Exams.

Problems on number Quiz 2

Directions: Kindly study the following Questions carefully and choose the right answer:

1. The ratio between a two-digit number and the sum of the digits of that number is 4 : 1. If the digit in the unit's is three more than the digit in the ten's places, what is the number?

A. 25 B. 36 C. 47 D. 58

2. If three numbers are added in pairs, the sums equal 10, 19 and 21. Find the numbers?

A. 2,3 and 5 B. 6,8 and 10 C. 6, 4 and 15 D. 12, 9 and 15

3. 50 is divided into two parts such that the sum of their reciprocal is 1/12 find the two parts.

A. 14, 36 B. 20, 30 C. 38, 12 D. 35, 15

4. If sum of two numbers is 50, one of them 2/5th of other one then the value of numbers?

A. $\frac{115}{7}, \frac{235}{7}$ B. $\frac{150}{7}, \frac{200}{7}$ C. $\frac{240}{7}, \frac{110}{7}$ D. $\frac{250}{7}, \frac{100}{7}$

5. A number exceeds its two fifth by 75. The number is:

A. 112 B. 150 C. 125 D. 100

6. The average of four consecutive even numbers is 27. find the largest of these numbers.

A. 22 B. 24 C. 27 D. 30

7. Out of two numbers, 4 times the smaller one is less than 3 times the larger one by 5, If the sum of the numbers is larger than 6 times their difference by 6, find the two numbers.

A. 55 and 58 B. 23 and 28 C. 59 and 43 D. 65 and 67

8. The ratio between a two-digit number and the sum of the digits of that number is 4 : 1. If the digit in the unit's is three more than the digit in the ten's places, what is the number?

A. 25 B. 36 C. 47 D. 58

9. If three numbers are added in pairs, the sums equal 10, 19 and 21. Find the numbers?

A. 2, 3 and 5 B. 6, 8 and 10 C. 6, 4 and 15 D. 12, 9 and 15

10. 50 is divided into two parts such that the sum of their reciprocal is 1/12 find the two parts.

A. 14, 36 B. 20, 30 C. 38, 12 D. 35, 15

Correct Answers:

1	2	3	4	5	6	7	8	9	10
B	C	B	D	C	D	C	B	C	B

Explanations:

1. Let the ten's digit be x. then, unit's digit = (x + 3).

Sum of the digits = x + (x + 3) = 2x + 3.

Let the number = 10x + (x +3) = 11x + 3

So, $\frac{11x + 3}{2x + 3} = \frac{4}{1}$

$\Rightarrow$ 11x + 3 = 4(2x + 3) $\Leftrightarrow$ 11x + 3 = 4 (2x + 3)

$\Rightarrow$ 3x = 9 $\Rightarrow$ x = 3

Hence, required number = 11x + 3 $\Rightarrow$ 36.

Hence, option B is correct.

2. Smart Approach:

By 'Hit & Trial' method

(2 + 3) ≠ 10. Option 'A' gets eliminated

(6 + 8) ≠ 10. Option 'B' gets eliminated too.

(6 + 4) = 10

(4 + 15) = 19

& (15 + 6) = 21

It's evident that the numbers in option 'C' satisfy the given condition.

Hence, option 'C' is the correct answer.

Traditional Approach:

Let the numbers be x, y and z. then

x + y = 10 .....(1) y + z = 19 .....(2) x + z = 21 ....(3)

Adding (1), (2) and (3),

we get : 2(x + y + z) = 50 or (x + y + z) = 25.

Thus, x = (25 – 19) = 6; y = (25 – 21) = 4; z = (25 – 10) = 15.

Hence, the required numbers are 6, 4 and 15.

Hence, option C is correct.

3. For shortcut method kindly refer to the video.

Let the two parts be x and (50 – x).

Then, $\frac{1}{x} + \frac{1}{50 - x} = \frac{1}{12}$

$\Rightarrow \frac{50 - x + x}{x(50 - x)} = \frac{1}{12}$

$\Rightarrow x^2 - 50x + 600 = 0 \Rightarrow (x - 30)(x - 20) = 0$

$\Rightarrow x = 20$ or $x = 30$

So, the parts are 30 and 20.

Hence, option B is correct.

4. Let's the first number is x so,

another number will be $\frac{2}{5}x$, then,

$\Rightarrow x + \frac{2}{5}x = 50$

$\Rightarrow \frac{5x + 2x}{5} = 50$

$\Rightarrow \frac{7x}{5} = 50$

$\Rightarrow x = \frac{250}{7}$

Similarly,

Another number will be

$= \frac{2}{5} \times \frac{250}{7} = \frac{100}{7}$

Hence, the numbers are $\frac{250}{7}, \frac{100}{7}$.

Hence, option D is correct.

5. Let the number be x

As per the equation,

$x - \frac{2}{5}x = 75$

$\therefore \frac{3}{5}x = 75 \Rightarrow x = 125.$

Hence option C is correct.

6. Let the four consecutive even numbers be x, x + 2, x + 4 and x + 6.

Then, sum of these numbers = (27 × 4) = 108.

So, $x + (x + 2) + (x + 4) + (x + 6) = 108$ or $4x = 96$ or $x = 24$.

So, the largest number = (x + 6) = 30.

Hence, option D is correct.

7. Let the number be x and y, such that x > y .
Then, 3x – 4y = 5 ....(1) and (x + y) – 6 (x – y) = 6
⇒ – 5x + 7y = 6 .....(2)
Solving (1) and (2), we get : x = 59 and y = 43.
Hence, the required numbers are 59 and 43.
Hence, option C is correct.

8. Let the ten's digit be x. then, unit's digit = (x + 3).
Sum of the digits = x + (x + 3) = 2x + 3.
Let the number = 10x + (x +3) = 11x + 3

So, $\frac{11x + 3}{2x + 3} = \frac{4}{1}$

⇒ 11x + 3 = 4(2x + 3) ⇔ 11x + 3 = 4 (2x + 3)
⇒ 3x = 9 ⇒ x = 3
Hence, required number = 11x + 3 ⇒ 36.
Hence, option B is correct.

9. Smart Approach:
By 'Hit & Trial' method
(2 + 3) ≠ 10. Option 'A' gets eliminated
(6 + 8) ≠ 10. Option 'B' gets eliminated too.
(6 + 4) = 10
(4 + 15) = 19
& (15 + 6) = 21
It's evident that the numbers in option 'C' satisfy the given condition.
Hence, option 'C' is the correct answer.

Traditional Approach:
Let the numbers be x, y and z. then
x + y = 10 .....(1) y + z = 19 .....(2) x + z = 21 ....(3)
Adding (1), (2) and (3),
we get : 2(x + y + z) = 50 or (x + y + z) = 25.
Thus, x = (25 – 19) = 6; y = (25 – 21) = 4; z = (25 – 10) = 15.
Hence, the required numbers are 6, 4 and 15.
Hence, option C is correct.

10. For shortcut method kindly refer to the video.

Let the two parts be x and (50 – x).

Then, $\frac{1}{x} + \frac{1}{50 - x} = \frac{1}{12}$

$\Rightarrow \frac{50 - x + x}{x(50 - x)} = \frac{1}{12}$

$\Rightarrow x^2 - 50x + 600 = 0 \Rightarrow (x - 30)(x - 20) = 0$

$\Rightarrow x = 20$ or $x = 30$

So, the parts are 30 and 20.

Hence, option B is correct.