

General Science And Ability

(Test No: 03)

QUESTION: 03

(PART: A)

A can do work in 15 days and
B in 20 days

Given Data:

A can do the work in 15 days

B can do the work in 20 days

They work together for 4 days

Required:

Fraction of work that is left when work
together for 4 days.

Solution:

(a) One day work for A :

$$\frac{1}{15}$$

(b) One day work for B :

$$\frac{1}{20}$$

(c) Combined work of One day:

$$= \frac{1}{15} + \frac{1}{20}$$

$$= \frac{4+3}{60}$$

$$= \frac{7}{60}$$

$$\begin{array}{r|l} 2 & 15-20 \\ \hline 5 & 5+10 \\ 2 & 3+2 \\ \hline 3 & 3-1 \\ \hline & 1-1 \end{array}$$

Together, they do $\frac{7}{60}$ work in one day

(d) Work done in 4 days, when work together.

$$= \frac{4 \times 7}{60}$$

$$= \frac{28}{60}$$

$$= \frac{7}{15}$$

(e) Work left

$$= 1 - \frac{7}{15}$$

$$= \frac{15-7}{15}$$

$$= \frac{8}{15}$$

Hence, $\frac{8}{15}$ of the work is left when A and B

work together for 4 days.

~(Q No: 03)~

~(PART: B)~

< Two numbers are in ratio 3:5 >

Given Data:

- (i) Two numbers are in the ratio $3:5$
- (ii) After subtraction of 9 from each number
new ratio becomes $12:23$

To be required:

- (i) Smaller number = ?

Solution:

Let the first number = x

Let the second number is also = x

(i) $\Rightarrow$

$$3x : 5x$$

(ii) $\Rightarrow$

$$3x - 9 : 5x - 9 = 12 : 23$$

$$\frac{3x - 9}{5x - 9} = \frac{12}{23}$$

(Cross Multiply)

$$23(3x - 9) = 12(5x - 9)$$

$$69x - 207 = 60x - 108$$

$$69x - 60x = -108 + 207$$

$$9x = 99$$

$$x = \frac{99}{9}$$

$$x = 11$$

(i) To find smallest number:

$$3x = 3 \times 11 = 33$$

$$5x = 5 \times 11 = 55$$

Hence, $3x$ will be the smallest number.

QUESTION: 03

PART: C

The average weight of A, B and C is 45kg.
If the average weight

Given Data:

- (i) Three quantities i.e., A, B, C
- (ii) Average weight of A, B, C = 45kg
- (iii) Average weight of A and B = 40kg
- (iv) Average weight of B and C = 43kg

To be Required:

Weight of B = ?

Formula:

$$\text{Average} = \frac{\text{sum of observation}}{\text{Total number of observation}}$$

Solution

(a) Find sum of observations from the formula:

(i) $A+B+C = 45\text{kg}$

$$\text{Average} = \frac{\text{Sum of observation}}{\text{Total number of observation}}$$

$$45\text{kg} = \frac{A+B+C}{3}$$

$$45 \times 3 = A+B+C$$

$$135 = A+B+C$$

or

$$\boxed{A+B+C = 135} \rightarrow \textcircled{A}$$

(iv) $\Rightarrow$

$$B+C = 43$$

$$\text{Average} = \frac{B+C}{2}$$

$$43 = \frac{B+C}{2}$$

$$B+C = 43 \times 2$$

$$\boxed{B+C = 86} \rightarrow \textcircled{B}$$

(iii) $\Rightarrow$

$$A+B = 40$$

$$\text{Average} = \frac{A+B}{2}$$

$$40 = \frac{A+B}{2}$$

$$A+B = 40 \times 2$$

$$\boxed{A+B = 80} \rightarrow \textcircled{C}$$

(b) Putting values in point (A)

$$A + B + C = 135$$

A +

(b) eq (A) $\Rightarrow$

$$A + B + C = 135$$

$$80 + C = 135$$

$$\therefore A + B = 80$$

$$C = 135 - 80$$

$$C = 55$$

Putting value of "C" in eq (B)

$$B + C = 86$$

$$B + 55 = 86$$

$$B = 86 - 55$$

$$B = 31$$

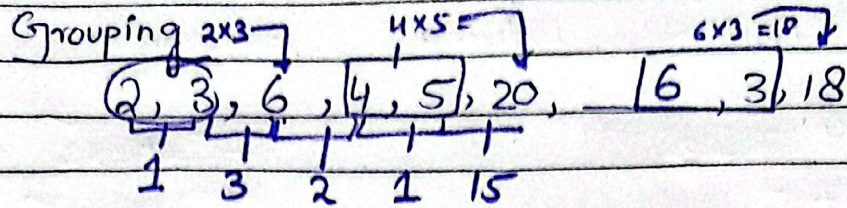
Hence, the value of weight of B is 31kg .

QUESTION: 03

(PART: D)

Find missing terms.

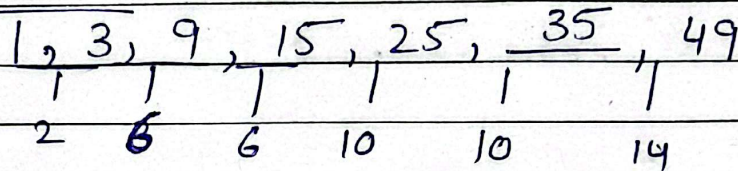
1- 2, 3, 6, 4, 5, 20, —, 3, 18



Missing Number = 6

2- 1, 3, 9, 15, 25, —, 49

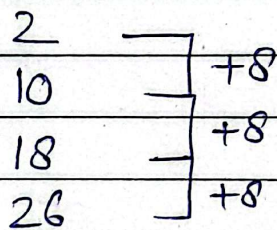
Difference



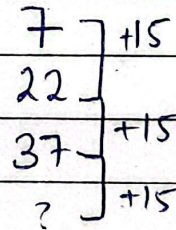
So, the Missing Number = 35

3- 2, 7, 10, 22, 18, 37, 26, —

Odd Position - Difference



Even Position - Difference



Missing Number = $37 + 15$
= 52.

4- 34, 7, 37, 14, 40, 28, 43, —

Odd Position

Difference

Even Number
Position

Difference

34 } +3
37 }
40 } +3
43 } +3

7 } ~~+7~~ x2
14 } ~~+7~~ x2
28 }
? } ~~+7~~ x2

~~So, $43 \times 2 = 86$~~

So, $28 \times 2 = 56$

Missing Number = 56

5. 5, 7, 11, —, 17, 19

5, 7, 11, —, 17, 19
+2 +3 +2

All, there are prime numbers so,
missing number will be 13

5, 7, 11, 13, 17, 19.



QUESTION: 01

PART: A

Sum of three consecutive prime number is 97. Find the numbers.

Given Data:

Sum of three consecutive prime numbers = 97

To be Required:

Find the number (consecutive prime numbers)

Solution

Let numbers are (consecutive prime numbers)

$$x, x+2, x+4$$

So,

$$x + x + 2 + x + 4 = 97$$

$$3x + 6 = 97$$

$$3x = 97 - 6$$

$$3x = 91$$

$$x = \frac{91}{3}$$

$$x = 30.33$$

(As, it is a decimal so, we find nearest possible prime number.

$$29 + 31 + 37 = 97$$

Hence, the three consecutive prime numbers

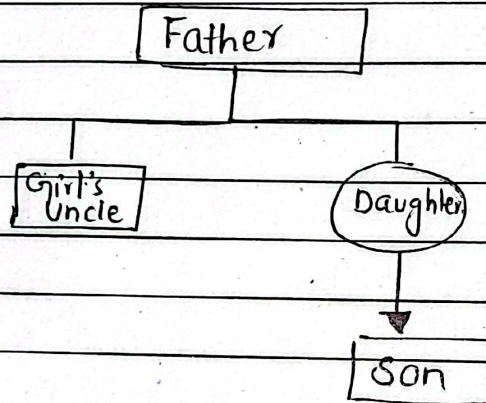
i.e, 29, 31, 37 sum is equal to 97.

QUESTION: 01

PART: B

Introducing a boy, a girl said, "He is the son of the daughter of the father..."

Given Data:



As, the mother of boy is the daughter of father of girl's uncle. Therefore, girl's uncle is the brother of ~~son~~ boy's mother. Hence, girl is the cousin of boy.

QUESTION: 01

PART: C

Two dice are thrown simultaneously.
What is the probability of getting
two numbers whose product is even

Given Data:

- (i) Two dice are thrown simultaneously
- (ii) Each dice has numbers
1, 2, 3, 4, 5, 6

To be Required:

- Probability of getting two numbers
whose product is even.

(Solution)

Possibilities = $6 \times 6 = 36$

(1X1), (1X2), (1X3), (1X4), (1X5), (1X6)
 (2X1), (2X2), (2X3), (2X4), (2X5), (2X6)
 (3X1), (3X2), (3X3), (3X4), (3X5), (3X6)
 (4X1), (4X2), (4X3), (4X4), (4X5), (4X6)
 (5X1), (5X2), (5X3), (5X4), (5X5), (5X6)
 (6X1), (6X2), (6X3), (6X4), (6X5), (6X6)

$$\text{Possib Probability} = \frac{27}{36}$$

$$= \frac{3}{4}$$

Hence, the probability of getting two numbers
whose product is even is $\frac{3}{4}$.

QUESTION: 01

PART: D

A library has an average of 510 visitors on Sundays and 240 on other days. The.....

Given Data:

- (i) Average visitors on Sunday = 510
- (ii) Average visitors on other days = 240
- (iii) Total days in a month = 30
- (iv) Month begins with a Sunday.

To be Required:

→ Average number of visitors per day in a month of 30 days beginning with a Sunday is

(Solution)

(a) Find number of Sundays in 30 day month.

1, 8, 15, 22, 29 → 5 Sundays

Sundays = 5

Other Days = $30 - 5 = 25$

(b) Calculate total visitors:

Visitors on Sundays:

$$\text{Average} = \frac{\text{sum of observation}}{\text{Total No. of observation}}$$

$$510 = \frac{\text{sum of observation}}{5}$$

$$\begin{aligned}\text{sum of observation} &= 5 \times 510 \\ &= 2550.\end{aligned}$$

Visitors on other days:

$$\text{Average} = \frac{\text{sum}}{\text{Total NO}}$$

$$\frac{240}{25} = \frac{\text{sum}}{25}$$

$$\begin{aligned}\text{sum of observation} &= 240 \times 25 \\ &= 6000\end{aligned}$$

Total visitors in a month:

$$= 2550 + 6000$$

$$= 8550$$

New Average per day:

$$\text{Average} = \frac{\text{sum of observation}}{\text{Total NO. of observation}}$$

$$= \frac{8550}{30}$$

$$= 285$$

Hence, 285 visitors visit the library per day

