

Question no: 03

Part (a) :

Given data:

A can do work in = 15 days

B can do work in = 20 days

$$\text{both can do work in} = \frac{1}{15} + \frac{1}{20}$$

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

$$\text{Total work done by both A and B} = \frac{7}{60}$$

$$\text{If both work together for} = \frac{7}{60} \times 4$$

$$= \frac{28}{60} \Rightarrow \frac{7}{15}$$

$$\text{Total work done is} = \frac{7}{15}$$

$$\text{Fraction of work left behind is} = \frac{1 - \frac{7}{15}}{1}$$

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

$$\text{Fraction of work left behind} = \frac{8}{15}$$

Part (b):

Let the two numbers 'x' are x

the ratio = $3x:5x$

if 9 is subtracted from each;

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

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

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

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

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

$$9x = 99$$

$$x = \frac{99}{9} \Rightarrow 11$$

Smaller number is; $3x$

$$3(11) = \underline{\underline{33}}$$

Part (c):

Average weight of A, B, C = 45 kg

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

$$A+B+C = 45 \times 3 \Rightarrow 135 \text{ kg} \quad \text{--- eq ①}$$

Average weight of A and B = 40 kg

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

$$A+B = 40 \times 2 \Rightarrow 80 \text{ kg} \text{ --- eq (2)}$$

Average weight of B and C = 43 kg

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

$$B+C = 43 \times 2 \Rightarrow 86 \text{ kg} \text{ --- eq (3)}$$

From eq (1)

$$A+B+C = 135 \text{ kg}$$

putting value of B+C in above eq

$$A+86 = 135$$

$$A = 135 - 86$$

$$A = 49 \text{ kg}$$

Now, putting the value of A in eq (2)

$$A+B = 80 \text{ kg}$$

$$49 + B = 80$$

$$B = 80 - 49$$

$$B = 31 \text{ kg}$$

Weight of B is 31 kg.

Part (d) :

$$1. \quad 2, 3, 6, 4, 5, 20, \underline{\quad}, 3, 18$$

For the above sequence, the pattern

Date: _____

M T W T F S

involves that every third term is product of the first two terms.

$$\text{where } 2 \times 3 = 6$$

$$4 \times 5 = 20$$

$$\text{---} \times 3 = 18$$

So, possible number to get 18 is **6**.

2. $1, 3, 9, 15, 25, \text{---}, 49$

$\begin{matrix} \nearrow & \nearrow & \nearrow \\ +3 & +6 & +10 \end{matrix}$

3. $2, 7, 10, 22, 18, 37, 26, \text{---}$

two-number series mentioned above;

$$2, 10, 18, 26, \text{---}$$

$\begin{matrix} \nearrow & \nearrow & \nearrow \\ +8 & +8 & +8 \end{matrix}$

$$7, 22, 37, \text{---}$$

$\begin{matrix} \nearrow & \nearrow \\ +15 & +15 \end{matrix}$

In first series, every number increases by 8, and in 2nd series, every number increases by 15 units. Following this pattern, next number will be;

4. $34, 37, 37, 14, 40, 28, 43, \text{---}$

$\begin{matrix} \nearrow & \nearrow & \nearrow & \nearrow & \nearrow \\ +3 & +3 & +3 & +3 & +3 \end{matrix}$
 $\begin{matrix} \nearrow & \nearrow & \nearrow \\ \times 2 & \times 2 & \times 2 \end{matrix}$

$$28 \times 2 = 56$$

Missing number is 56.

5. $5, 7, 11, \underline{\quad}, 17, 19$

$\nearrow \nearrow$
 $+2 \quad +4$

$\nearrow$
 $+2$

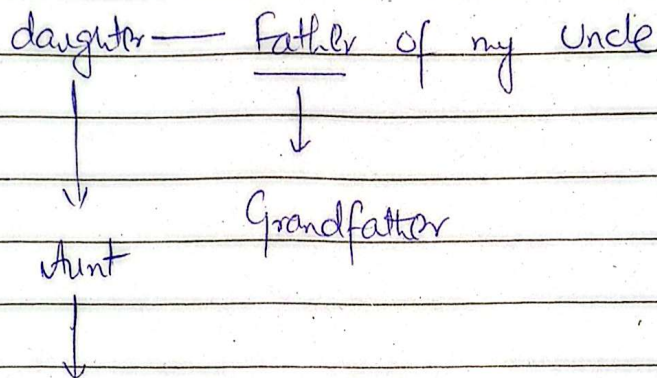
Missing number $11 + 2 \Rightarrow 13$

Question no: 01

Part (b):

Statement:

He is the son of the daughter of the father of my uncle.



Son (Cousin)

So, boy is the cousin of the girl.

Part (d):

If a month starts with a Sunday, total 5 sundays will be in a month.

Total visitors on Sunday = 510×5
 in a month = 2550 visitors

Rest of the days = $30 - 5 = 25$ days

Visitors on other days = 25×240
= 6000 visitors

Total visitors in a month = $6000 + 2550$
= 8550

Number of visitors per day = $\frac{8550}{30}$
= 285 visitors

Part (a) :

Sum of three consecutive prime number = 97

three consecutive numbers = $x + x + x = 97$

$$3x = 97$$

$$x = \frac{97}{3}$$

$$x = 31.5 \approx 32$$

So, prime numbers near 32 can be the possible numbers.

Prime numbers near 32 are 29, 31, 37.

$$29 + 31 + 37 = 97$$

So, 29, 31, 37 are the three consecutive prime numbers whose sum is 97.