

Date: _____

Khadija Saeed.
Test 3

Question 1

Sum of three consecutive Prime numbers is 97. Find the numbers.

Solution:

Let the three prime numbers are

$$2x, 3x, 5x$$

According to condition

$$\text{Sum of three prime numbers} = 97$$

$$2x + 3x + 5x = 97$$

$$10x = 97$$

Divided by 10 on both sides

$$\frac{10x}{10} = \frac{97}{10}$$

$$x = 9.7$$

So the numbers are

$$2x = 2 \times 9.7 = 19.4$$

$$3x = 3 \times 9.7 = 29.1$$

$$5x = 5 \times 9.7 = 48.5$$

Result:

Three prime numbers are

19.4
29.1
48.5
= 97.0

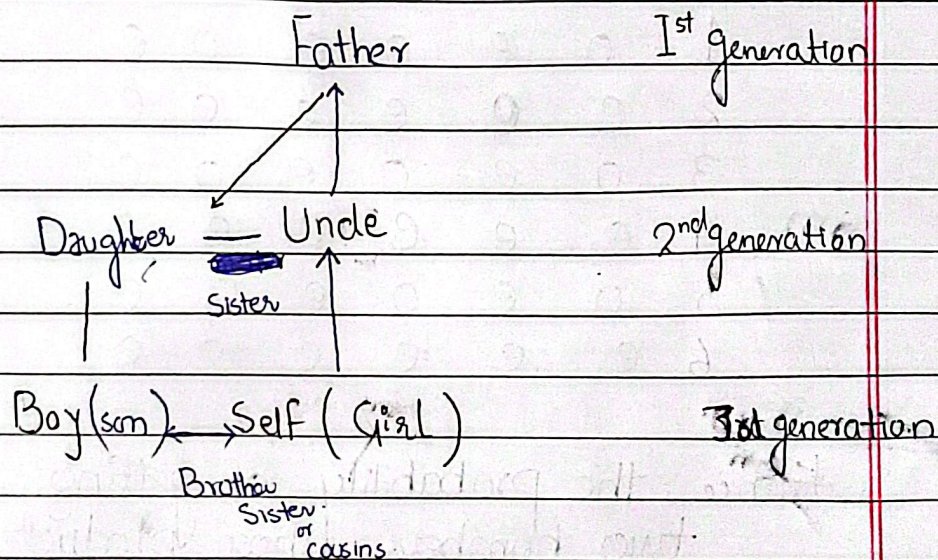
Date: _____

B2 Introducing a boy, a girl said, "He is the son of the daughter of the father of my uncle."

How the boy related to that boy

SOLUTION:

The answer is given through an illustration.



From the illustration one cannot fully deduce the fact that either the boy is the brother of the girl or cousin.

~~Hence, the~~ If the uncle is paternal uncle that they ~~might be~~ ^{are} **Cousins** ~~or~~ or if the uncle belongs to mother's family, then boy and the girl might be brother and sister.

Date: _____

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

SOLUTION:

As one dice has six sides therefore total number of even numbers possibility on two dices can be measured through a checker box. Let "e" denotes even and "O" denotes odd.

X	1	2	3	4	5	6
1	O	e	O	e	O	e
2	e	e	e	e	e	e
3	O	e	O	e	O	e
4	e	e	e	e	e	e
5	O	e	O	e	O	e
6	e	e	e	e	e	e

Hence, the probability of getting two numbers whose product is even, while throwing two dices simultaneously is ~~27~~ 27 and total number of sample space = 36

$$\text{So probability} = \frac{27}{36} = \frac{9}{12} = \frac{3}{4}$$

$\text{Probability (Even)} = \frac{3}{4}$

- D A library has an average of 510 visitors on Sundays and 240 on other days. The average number of visitors per day in a month of 30 days beginning with a Sunday is.

SOLUTION:

A month of 30 days starting from a Sunday will contain

5 Sundays in a month with remaining 25 days.

1 Total numbers of visitors on Sundays

$$\text{Average} = \frac{\text{No of visitors}}{\text{Total ~~visitors~~ Sundays}}$$

$$510 = \frac{(Nvs)}{5}$$

$$(Nvs) = 510 \times 5$$

$$= 2550 \text{ visitors on Sundays}$$

2 Total number of visitors on remaining days

$$Nv_{\text{Remaining}} = 240 \times 25 \text{ days}$$

$$= 6000 \text{ visitors}$$

3 Total visitors in a month of 30 days

$$Nvs_{\text{Sundays}} + Nv_{\text{Remaining}}$$

$$= 2550 + 6000$$

$$= 8550 \text{ visitors}$$

4 Average of visitors in a month of → 30 days

$$\text{Average per day} = \frac{\text{Total visitors}}{\text{days in month}}$$

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

$$= 285 \text{ visitors per day}$$

QUESTION #03

A can do work in 15 days and B in 20 days. If they work on it together, for 4 days, then the fraction of the work that is left is?

Data Given:

A work done = 15 days

B work done = 20 days

Required:

Fraction of work left after doing work together for 4 days

Solution:

To find the fraction of work done left after doing work together by A and B for 4 days, first we have to find

① Work done by A in one day

$$W_A = \frac{1}{15} \text{ days}$$

Date: _____

② Work done by B in one day

$$W_B = \frac{1}{20} \text{ days}$$

③ Work done by A and B in one day

$$\begin{aligned} W_{A+B} &= \frac{1}{15} + \frac{1}{20} \\ &= \frac{4 + 3}{60} \\ &= \frac{7}{60} \text{ days} \end{aligned}$$

④ The fraction of work left while both A and B did work for 4 days.

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

$$W_{A+B} = \frac{7}{15} \text{ Ans.}$$

C The average weight of A, B and C = 45 kg.
 If the average weight of A and B be 40 kg
 and that of B and C be 43 kg. Then weight
 of B is ?

Data Given:

Average weight of A, B, C = 45 kg

Average weight of A, B = 40 kg

Average weight of B, C = 43 kg

$$\begin{array}{r} A+B+C = 135 \text{ kg} \\ A+B = 80 \\ \hline C = 55 \end{array}$$

$$80 \times 1.7$$

$$136$$

Date: _____

1

Weight of B = ?

Solution:-

To find weight of B, first weight of A or C must be find by finding the total weight of the sum $A+B+C$.

$$\text{Average ABC} = \frac{A+B+C \text{ weight}}{3}$$

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

$$\begin{aligned} \text{Total weight} &= 45 \times 3 \\ A+B+C &= 135 \text{ kg} \quad (i) \end{aligned}$$

Now

$$\begin{aligned} \rightarrow \text{Total weight of A+B} &= 40 \times 2 \\ A+B &= 80 \text{ kg} \quad (ii) \end{aligned}$$

$$\begin{aligned} \rightarrow \text{Total weight of B+C} &= 43 \times 2 \\ B+C &= 86 \text{ kg} \quad (iii) \end{aligned}$$

Putting eq (ii) in eq (i) to get

Weight of C.

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

$$80 + C = 135 \text{ kg}$$

$$C = 135 - 80 \text{ kg}$$

$$C = 55 \text{ kg} \quad \text{eq. (iv)}$$

Now put eq. (iv). value of C in
eq. (iii)

$$B + C = 86 \text{ kg}$$

$$B + (55 \text{ kg}) = 86 \text{ kg}$$

$$B + 55 - 55 = 86 - 55 \text{ kg}$$

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

HENCE

WEIGHT OF B = 31 kg;

D Find the missing:

1 2, 3, 6, 4, 5, 20 6, 3, 18

2 1, 3, 9, 15, 25, 30, 49

3 2, 7, 10, 22, 18, 37, 26, 52

4 34, 7, 37, 14, 40, 28, 43, 35

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

B Two numbers are in the ratio 3:5 if 9 is subtracted from each. the new numbers are in the ratio 12:13. The smaller number is ?

Date: _____

Solution:

Let the two numbers are

$3x$ and $5x$

So According to Condition

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

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

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

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

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

$$x = 11$$

So the numbers are

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

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

Smallest Number is

$$3x = 33 \text{ Ans}$$