Q.1 (A) Sum of three consecutive prime number is 97. Find the numbers.

Sol: Prime number means $2, 3, 5, 7, \ldots$

let 'n' be the prime numbers

— There are three numbers

$$3n = 97$$

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

$$n = \quad 32 \cdot 3$$

So, the prime number is belwer the the 32.

$\rightarrow$ 29, 31, 37 are the consecutive prime numbers.

(B) Introducing a boy, a girl said, "He is the son of the daughter of the father of my uncle." How is the boy related to the girl?"

Sol: So the girl is denoted by G and Boy with B.

Decode the text:
· Father of uncle means grandfather
· Daughter means mother

So a boy is the brother of the girl.

(c) Two dice are thrown Simultaneously. What (i) is the probability of getting two numbers whose product is even?

Sol: When rolling two dice, the possible 36 outcomes.

dice 1 = { 1, 2, 3, 4, 5, 6 }
dice 2 = { 1, 2, 3, 4, 5, 6 }

even numbers are 2, 4, 6 each and odd numbers are 1, 3, 5

However, when we multiply even $\times$ even = Even
= 3 $\times$ 3 = 9
even $\times$ odd = even $\Rightarrow$ 3 $\times$ 3 = 9
odd $\times$ even = even $\Rightarrow$ 3 $\times$ 3 = 9

Possibility is $\not\to$ 9 + 9 + 9 = 27 out of 36

$\rightarrow$ 3/4 possibility of getting even product.

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

Sol: if month Starts with Sunday. So there are five Sundays in a month.

Sunday = 510
other days = 240

$$= 510 (Sundays) + (other days)$$

$$= (510 \times 5) + (240 \times 25)$$

$$= 2550 + 6000$$

$$= 8550, \text{ visitors in a month}$$

Average $\dfrac{8550}{30}$

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

Q.2 (A) Saqib took a loan of Rs. 1200 with Simple interest for as many years as the rate of interest. If She paid Rs. 432 as interest at the end of the loan period, What was the rate of interest ?

Sol: Formula for Simple interest

$$SI = \frac{P \times R \times T}{100}$$

$$SI = 432$$

$$P = 1200$$

$$T = R$$

P = Principal amount
R = rate
T = time.

So

$$432 = \frac{1200 \times R \times R}{100}$$

$$432 = 12 R^2$$

$$R^2 = \frac{432}{12}$$

$$R^2 = 36$$

$$R = \sqrt{36}$$

$$R = 6$$

So the rate of interest is 6%.

Q.2(c) A person's present age is two-fifth of the age of his mother. After 8 years, he will be one-half of the age of his mother. How old is the mother at present?

Sol: Suppose Person's age is 'P'

Mothers age is 'M'

Present relationship

$$P = \frac{2}{5} M \quad ---- \quad ①$$

After 8 years,

$$P + 8 = \frac{1}{2} (M + 8) \quad ---- \quad ②$$

Substitute equation ① into ②

$$\left(\frac{2}{5} M\right) + 8 = \frac{1}{2} (M + 8)$$

$$\frac{2}{5} M + 8 = \frac{1}{2} M + 4$$

$$8 - 4 = \frac{1}{2} M - \frac{2}{5} M$$

$$4 = \frac{5 - 4}{10} M$$

$$4 = \frac{1}{10} M$$

$$40 = M$$

So The age of mother is 40 years old.