Exercise 3E

Question 30:
Let the present ages of the mother and her son be x and y respectively.
According to the given question:
x + 2y = 70 ---(1)
and
2x + y = 95 ---(2)
Multiplying (1) by 1 and (2) by 2, we get
x + 2y = 70 ---(3)
4x + 2y = 190 ---(4)
Subtracting (3) from (4), we get
3x = 120
y = 120/3 = 40
Putting x = 40 in (1), we get
40 + 2y = 70
2y = 30
y = 15
x = 40, y = 15
Hence, the ages of the mother and the son are 40 years and 15 years respectively.

Question 31:
Let the present age of the man and the sum of the ages of the two sons be x and y respectively.
We are given x = 3y ---(1)
After 5 years the age of man = x + 5
And age of each son is increased by 5 years
Age of two sons after 5 years = y + 5 + 5 = y + 10
Now,
x + 5 = 2(y + 10)
or x + 5 = 2y + 10
x - 2y = 15 ---(2)
Putting x = 3y in (2)
3y - 2y = 15
y = 15
Putting y = 15 in (1),
x = 3 × 15 = 45
Age of the man = 45 years.

Question 32:
Let the present age of the man and his son be x and y respectively.
Ten years later:
(x + 10) = 2(y + 10)
x + 10 = 2y + 20
x - 2y = 10 ---(1)
Ten years ago:
(x - 10) = 4(y - 10)
x - 10 = 4y - 40
x - 4y = - 30 ---(2)
Subtracting (1) from (2), we get
-2y = -40
y = 20 years
Putting y = 20 in (1), we get
x - 2 × 20 = 10

x = 50

x = 50 years, y = 20 years

Hence, present ages of the man and his son are 50 years and 20 years respectively.