1. What quantity of water should be added to the milk water mixture so that the milk water ratio changes from 2:3 to 4:11. The quantity of milk in the mixture is 40 litres?

solution:

Initially the milk water ratio=2/3

After adding water to the milk water mixture the milk water ratio is 4/11

The quantity of milk in the mixture = 40 litres

Assume quantity of water in mixture initially is X litres and after adding water is X+Y.

40/X=2/3

X=60 litres

40/(X+Y) = 4/11

40/(60+Y) =4/11

Y=50

50 litres

2. Linear equation 2x+3y=0 meets the x & y-axis at the point?

Ans: (0,0)

3. a & b are positive integers such that a^2-b^2=19. Find a & b?

Solution:

a^2-b^2=19

(a+b)(a-b)=19

19 is prime number and a and b are positive intergers so

a+b=19 and a-b=1

after solving above equation

a=10

b=9

4. Find a^+b^3+c^3-3abc , where a+b+c=5 & , a^2+b^2+c^2=10?

Solution:

(a+b+c)^2 = a^2+b^2+c^2+2(ab+bc+ca)

5^2=10+2(ab+bc+ca)

ab+bc+ca=15/2

a^+b^3+c^3-3abc=(a+b+c)(a^2+b^2+c^2-bc-ab-ac)=5(10-15/2)=12.5

5. Sum of two, two-digit numbers is a perfect square. The digits of the first two-digit number are two consecutive positive integers; also, when the digits of the first number are reversed, the second number is formed. Find these numbers & the square root of their sum.

Solution:

Assume first two-digit number= X*10+(X+1)

Then second two-digit number= (X+1)*10+X

sum of these two number=22X+11

According to question 22X+11 is a perfect square, so

11(2X+1)

for a perfect square 2X+1 must be 11

therefore X=5

first two-digit number=56

second two-digit number=65

square root of their sum=11