REVISION

1) Write the statement of 'Fundamental Theorem of Arithmetic.

The **fundamental theorem of arithmetic** every composite number can be written or factorized as the product of primes and this factorization is unique, apart from the order in which the prime factors occur.

Example: 132 =2x2x3x11 =2x3x2x11=3x2x11x2=3x2x2x11=11x2x3x2

2) Find the zeroes of the quadratic polynomial $x^2-x-132$.

Solution: $p(x) = x^2 - x- 132$

$X^2 - 12x +11x -132$

$= x(x -12) + 11 (x – 12)$

$= (x – 12) (x + 11)$

Now p (x) = 0

$\Rightarrow x – 12 = 0$ and $x +11 = 0$

$\therefore x = 12$ and $x = -11$

3) Solve the pair of equations:; $\frac{2}{x} + \frac{3}{y} = 13$; $\frac{5}{x} - \frac{4}{y}$ = -2

Let $\frac{1}{x}$ = m and $\frac{1}{y} = n$

$\frac{2}{x} + \frac{3}{y} = 13$_____ (i)

2m + 3n = 13 _____ (iii)

$\frac{5}{x} - \frac{4}{y}$ = -2 _____ (ii)

5m – 4n = -2 _____(iv)

Equation (iii) x 4 and (iv) x 3 and (iii) + (iv)

8m + 12n = 52

15m – 12n = -6

_____

23m = 46

∴ m = 2

Putting the value of m in equation (iii)

$\Rightarrow$4 + 3n = 13

$\Rightarrow$3n = 9

∴ $\frac{1}{x}$ = m n = 3

$Now \; \frac{1}{x}$ = m $\Rightarrow \frac{1}{x}$ = 2 ∴ $x = 1/2$

$\frac{1}{y} = n \Rightarrow \frac{1}{y} = 3$ ∴ $y = 1/3$

Do Your Self

4) A boat goes 30 km up stream and 44 km downstream in 10 hours. In 13 hours, it can go 40 km upstream and 55 km downstream. Determine the speed of the stream and that of the boat in still water.

5) A motor boat whose speed is 18 km/h in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.

6) Solve graphically $x{+}3y{=}6$ $2x{-}3y{=}12$

7) A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less for the same journey. Find the speed of the train.