## **Method of Common Factors**



## Method of common factors:

• We begin with a simple example:

## Factorise 2x + 4.

We shall write each term as a product of irreducible factors;

 $2x = 2 \times x$ 

 $4 = 2 \times 2$ 

Hence  $2x + 4 = (2 \times x) + (2 \times 2)$ 

Notice that factor 2 is common to both the terms.

Observe, by distributive law

 $2 \times (x + 2) = (2 \times x) + (2 \times 2)$ 

Therefore, we can write

 $2x + 4 = 2 \times (x + 2) = 2 (x + 2)$ 

Thus, the expression 2x + 4 is the same as 2(x + 2). Now we can read off its factors:

they are 2 and (x + 2). These factors are irreducible.

## Next, factorise 5xy + 10x.

The irreducible factor forms of 5xy and 10x are respectively,

 $5xy = 5 \times x \times y$  $10x = 2 \times 5 \times x$ 



Observe that the two terms have 5 and x as common factors. Now,  $5xy + 10x = (5 \times x \times y) + (5 \times x \times 2)$ 

 $= (5x \times y) + (5x \times 2)$ 

We combine the two terms using the distributive law,

 $(5x \times y) + (5x \times 2) = 5x \times (y + 2)$ 

Therefore, 5xy + 10x = 5 x (y + 2). (This is the desired factor form.)