One of the disadvantages in using the method of substitution to solve simultaneous equations is that fractions are often involved in the equations. This usually happens when none of the coefficients of the unknowns in the equations is equal to 1.

solve this problem is to eliminate one of the unknowns



Hence we shall study a different method in solving simultaneous equations: the method of climination. In this method, one of the unknowns in the simultaneous equations will be eliminated by adding or subtracting the two equations. As a result, we can avoid fractions.



Exemple 4 Solve the simultaneous equations:

Solution Adding the two equations:

(i) 
$$3x + 2y = 19$$
  
(ii)  $3x - 2y = 11$   
(i)+(ii)  $6x = 30$   
 $x = 5$ 

Substitute x = 5 into (i), we have

$$3(5) + 2y = 19$$
  
 $2y = 4$ 

 $\therefore$  The solution is x = 5, y = 2.

■ Be adding the two equations, the terms +2y and -2y cancel each other. Hence the unknown y is eliminated, leaving a simple equation in r.

The check is left to the students.

Note: If we start solving the simultaneous equations by subtracting equation (ii) from equation (i), then we shall obtain the value of y first.

i.e. (i) 
$$3x + 2y = 19$$
  
(ii)  $3x - 2y = 11$   
(i) - (ii)  $4y = 8$ 

y = 2Then we can substitute the value of y into either equation (i) or (ii) to obtain the value of x.