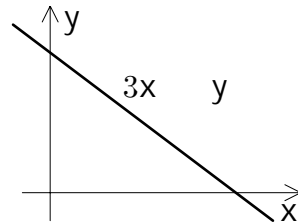


**Mathematics Drop-in Centre**

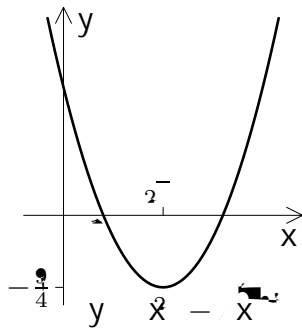
**GRAPHS**

Graph sketching is a very important skill. From a well drawn graph you may be able to immediately see properties of a function including roots, its turning points and where the function is increasing or decreasing. Graphs should always be **large** and **neatly drawn** and important features should be **labelled**.



Setting  $y = 0$  gives the  $x$  intercept.  
 We plot these points and draw the line joining the

intercepts on the axes. For example, consider  $3x - y = 0$ .  
 Substituting  $x = 0$  gives  $y = 0$ .  
 Substituting  $y = 0$  gives  $3x = 0$  so  $x = 0$ .



The quadratic equation  $y = ax^2 + bx + c$  and solving for  $y$  gives the  $y$  intercept.  
 represents a **parabola**. To sketch the graph we need to find its roots. See revision worksheets on quadratics if you need and note its concavity. For a more accurate sketch the  $y$  intercept and vertex may also be useful. Consider for example  $y = x^2 - x - 3/4$  here are  $x$  intercepts at the roots of the quadratic  $x^2 - x - 3/4 = 0$ .

## EXERCISES

Please try to complete the following exercises. Remember that you **cannot** expect to understand mathematics without doing lots of practice. Please do not look at the answers before trying the questions. If you get a question wrong you should go through y