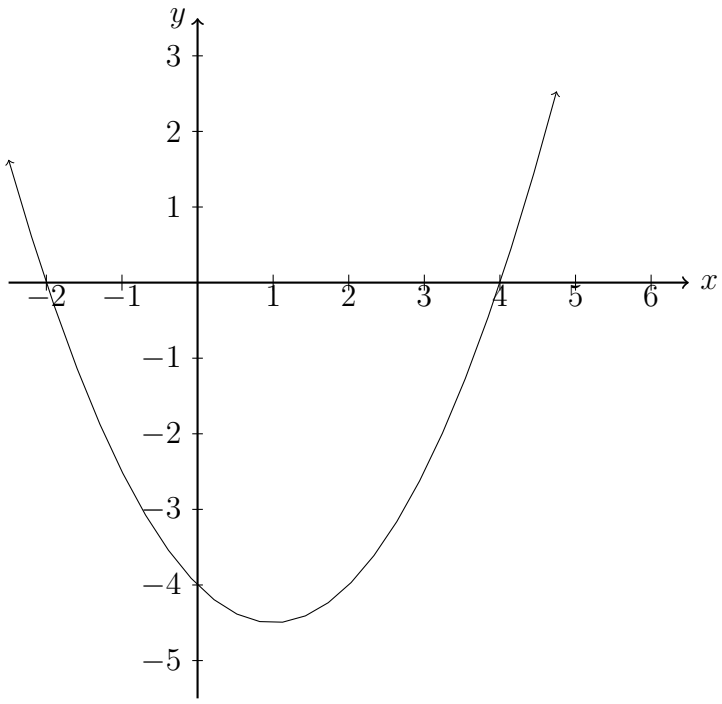
5.4 Do Now: Graphing quadratic functions

1. A quadratic function f is graphed below with x-intercepts of -2 and 4, and y-intercept of -4.



(a) Write down the two values of x for which $f(x) = 0$.

(b) Write down the equation of the axis of symmetry.

The function can be written in factored form, $f(x) = a(x - x_1)(x - x_2)$

(c) Write down the value of x_1.

(d) Write down the value of x_2.

(e) Find a.

(f) Write the function f in vertex form $f(x) = a(x - h)^2 + k$.

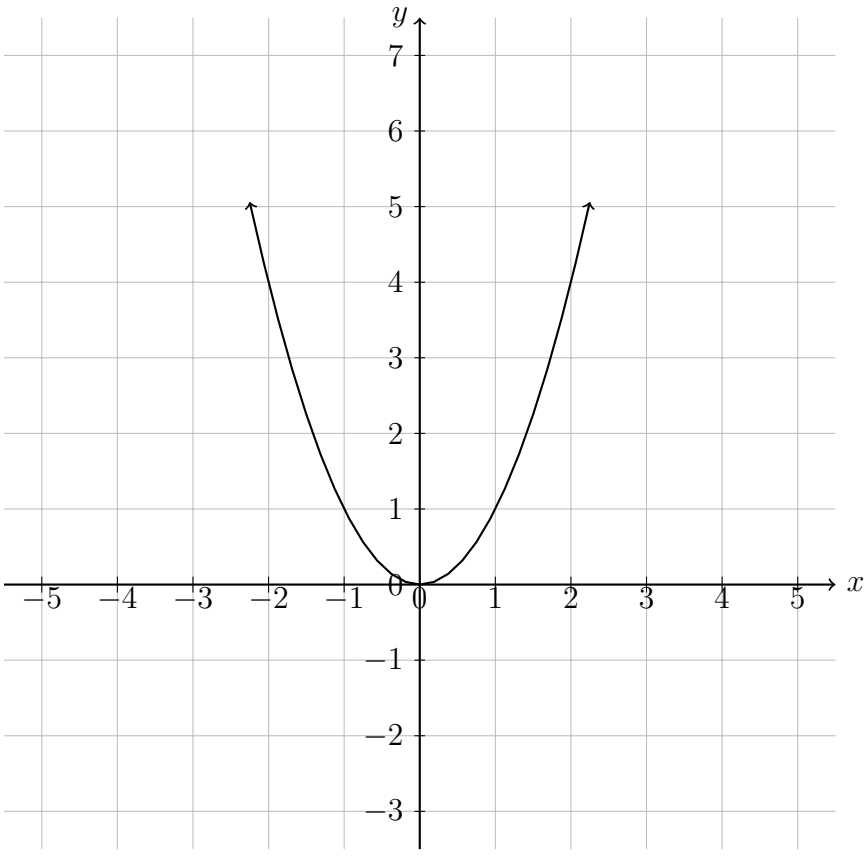
2. Graph the $f(x) = 2x^2 - 12x + 11$ on your calculator and use its functions to answer these questions.

   (a) Write down the coordinates of the vertex.

   (b) Hence or otherwise, express the function in the form $f(x) = 3(x - h)^2 + k$.

   (c) Solve the equation $f(x) = 0$.

3. The diagram below shows part of the graph of the function $f(x) = x^2$.



   (a) $g(x)$ is the image of f after a translation right 3 and down 1. Draw g.

   (b) g can be written in the form $g(x) = a(x - h)^2 + k$. Write down h and k.

   (c) Expand g to standard form, $g(x) = ax^2 + bx + c$.