

NAME: \_\_\_\_\_

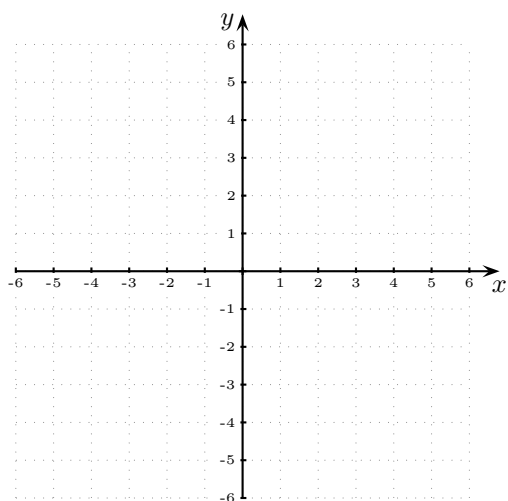
Write your answers in other sheets and/or the graph paper provided and **STAPLE this one to your other sheets.**

**IMPORTANT:** You need to show your work (for example, how you solve equations) in order to obtain credit.

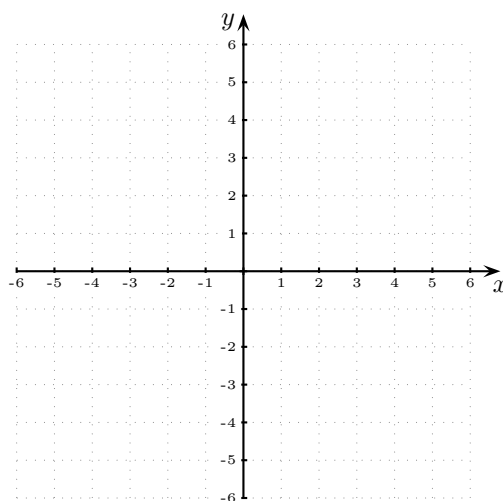
**Final answers alone will not receive credit.**

1. For the following quadratic functions,
  - Find the vertex and  $x$ - and  $y$ -intercepts.
  - Give the equation of the axes of symmetry.
  - Draw the graph in the axes provided,
  - Determine the function's domain and range.

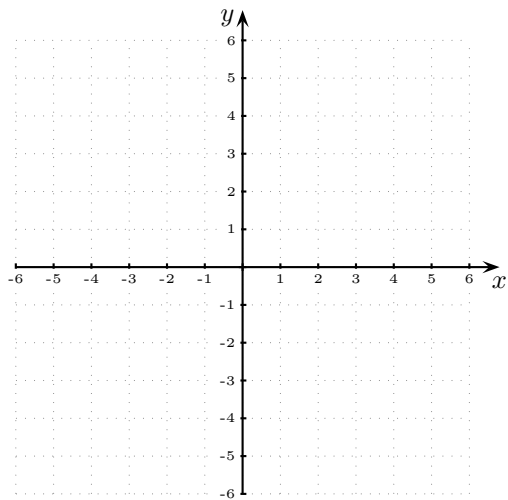
a)  $f(x) = (x - 4)^2 - 1$ .



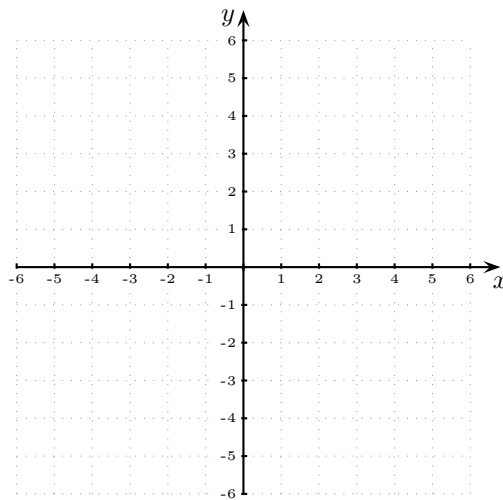
b)  $g(x) = 4 - (x - 1)^2$ .



c)  $h(x) = 3x^2 - 2x - 4$ .



d)  $i(x) = 2x - x^2 - 2$ .



**2.** For each of the following functions, find

- (i)** The end behaviour of the graph.
- (ii)** The  $y$ -intercept.
- (iii)** For exercises **a)**, **b)**, **c)**, the  $x$ -intercepts with their multiplicity and the local behaviour at the  $x$ -intercepts.
- (iv)** Do the graphs of all the functions using any graphing device. For example, use <https://www.desmos.com/calculator>  
Check that the end behaviour of the graphs that you found in part **(i)** are all correct.

**a)**  $f(x) = 2(x - 2)^2(x + 1)$

**b)**  $f(x) = -2x^2(x - 2)(x + 2)^2$

**c)**  $f(x) = 3x(x + 1)^2(x - 1)^3$

**d)**  $f(x) = -x^4 + 5x^2 + x$