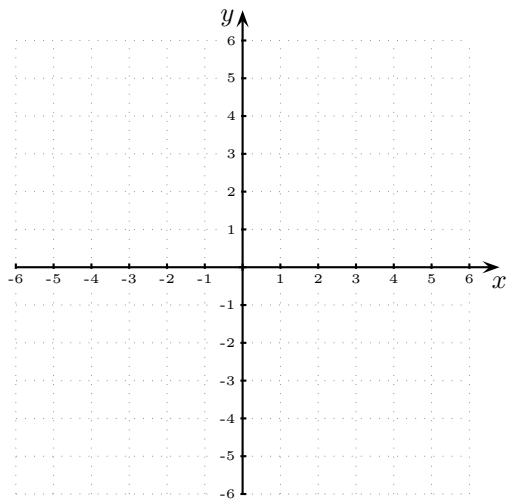**NAME:**_____

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

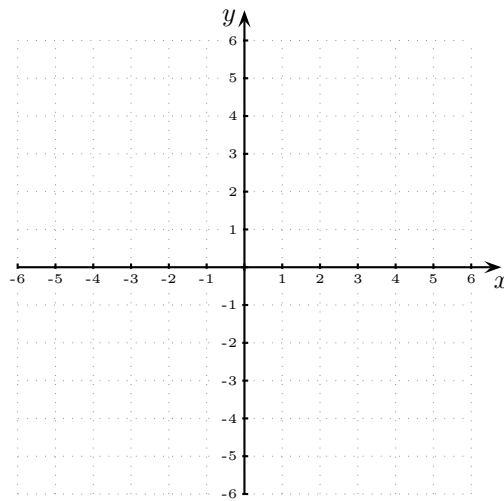**IMPORTANT:** You need to show your work (for example, how you solve equations) in order to obtain credit. **Final answers alone will not receive credit.**

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,
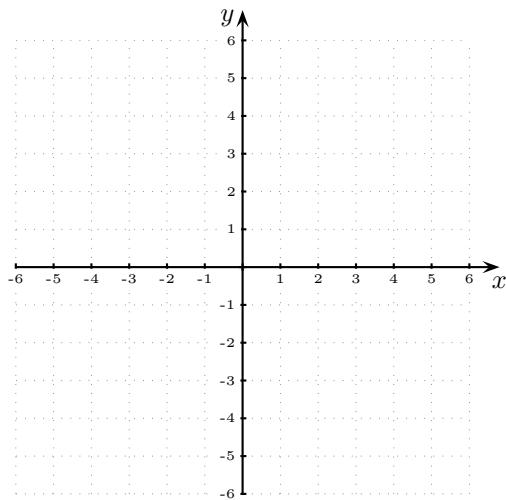- Determine the function's domain and range.
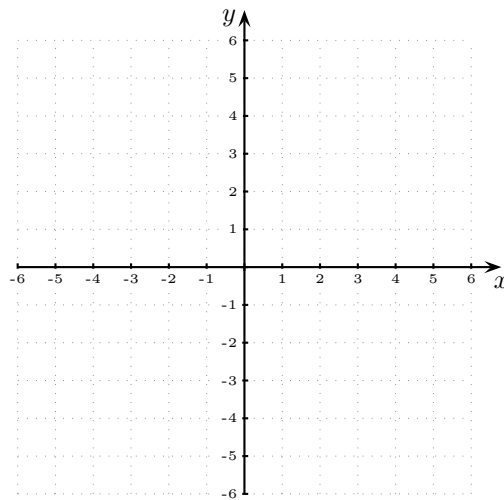
a) $f(x) = (x-4)^2 - 1$.

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