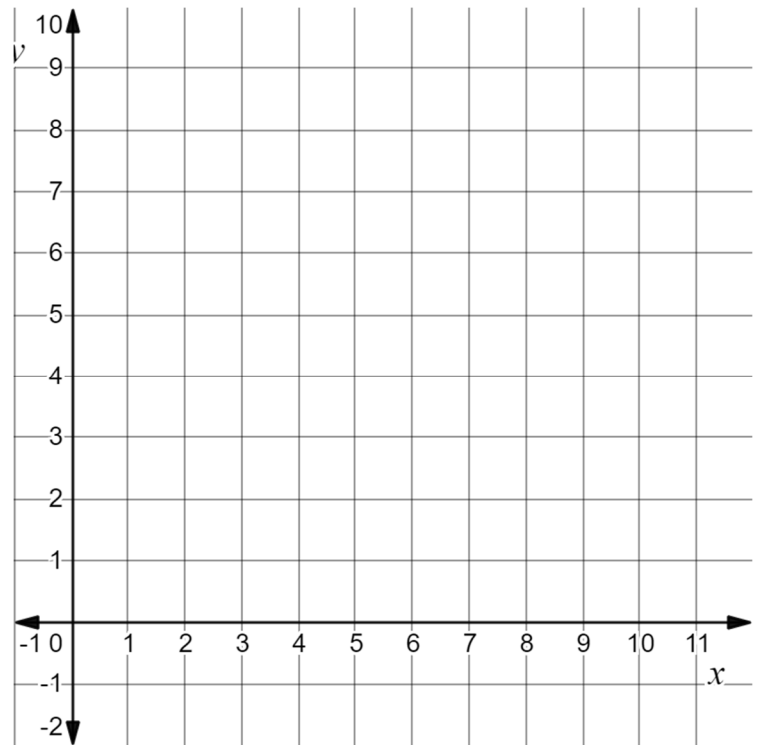Name: _____   Date: _____

Consider the quadratic function

$$y = \frac{-1}{2}x^2 + 6x - 10.$$

Find the y − intercept, then factor to find the x − intercept(s). Graph the function either by using
these coordinates, or by completing the table of values.
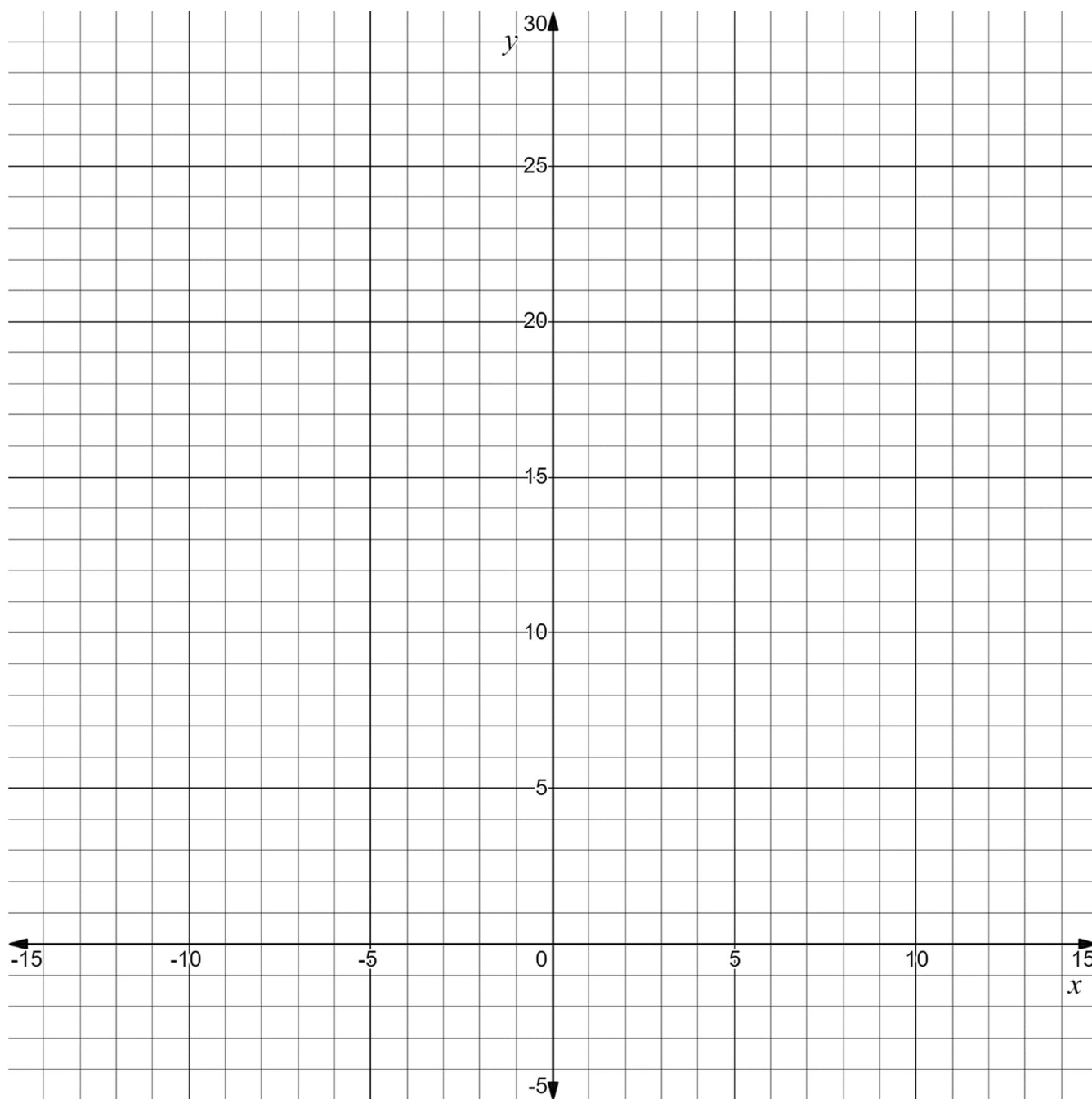
x						
y						

1. y-intercept	2. x-intercept(s)	3. Equation of the axis of symmetry
4. Coordinates of the vertex	5. Maximum or minimum? Value?	6. Domain and range

Sketch a graph of each of the following functions. Find the equation of the axis of symmetry and the coordinates of the vertex.   Is the vertex a maximum or minimum?

a. $f(x) = 3x^2 + 6x + 24$ b. $h(x) = \dfrac{1}{3}x^2 + 3x + 6$

At a splash pad, water jets spray water from ground level. The path of the water from one of these jets forms an arch that can be defined by the function $h = -0.15x^2 + 3x$. Where h is the height of the water and x is the distance from jet. Both h and x are in meters.

a. Graph the function

b. State the domain and range of the function.

c. what is the maximum height of the water?