2.4.13 Naïvely, the standard form of the equation is

$$(x - 0)^2 + (y - 2)^2 = 2^2,$$

which we simplify to

$$x^2 + (y - 2)^2 = 4.$$
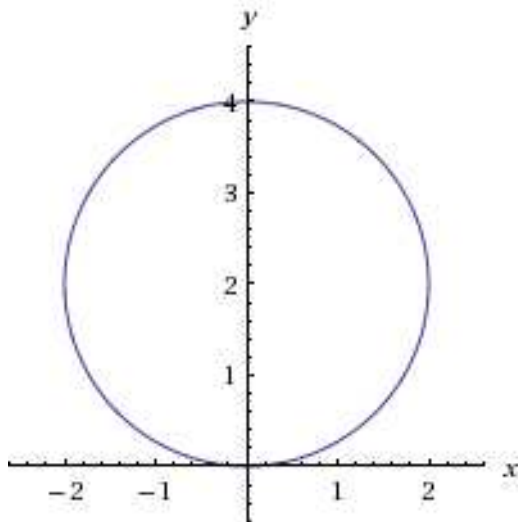
Then the general form is

$$x^2 + y^2 - 4y + 4 = 4,$$

which we simplify to

$$x^2 + y^2 - 4y = 0.$$

Here is a graph:

2.4.37 The circle touches the horizontal axis directly below the centre, at $(2, 0)$. The distance from this to $(2, 3)$ is 3, so that is the radius, whose square is 9. Thus, the equation is

$$(x - 2)^2 + (y - 3)^2 = 9.$$