

Two ways to describe a curve in the xy -plane:

1. The set of all points satisfying a single equation involving the variables x and y .

Ex. g. $y = x^2$ or $x^2 - y = 4$

Special case: $y = f(x)$, $a \leq x \leq b$; then the curve is the graph of the function f for x in $[a, b]$.

2. The set of all points which satisfy a pair of equations

$$\begin{cases} x = g(t) \\ y = h(t) \end{cases}, \text{ where } t \text{ (called a } \underline{\text{parameter}})$$

takes values in an interval $t_0 \leq t \leq t_1$.

Ex. g. $\begin{cases} x = \sqrt{t} \\ y = t \end{cases}, 0 \leq t \leq 1.$