Name _____
Date _____ Period _____

Given f and g are two functions with a common domain, Interval I,
the collection of coordinate points...

$$(x,y) = (f(t), g(t))$$

is called a plane curve.

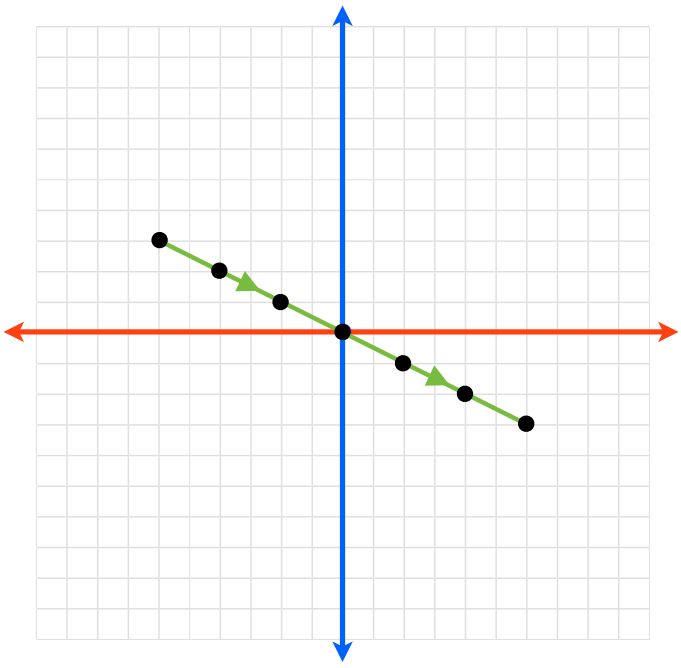
$$x = f(t) \qquad y = g(t)$$

are called parametric equations

the variable, t, in the Interval I is called the parameter.

$-3 \le t \le 3$ $x = 2t$ $y = -t$

t	x	y	(x,y)
-3	-6	3	(-6,3)
-2	-4	2	(-4,2)
-1	-2	1	(-2,1)
0	0	0	(0,0)
1	2	-1	(2,-1)
2	4	-2	(4,-2)
3	6	-3	(6,-3)

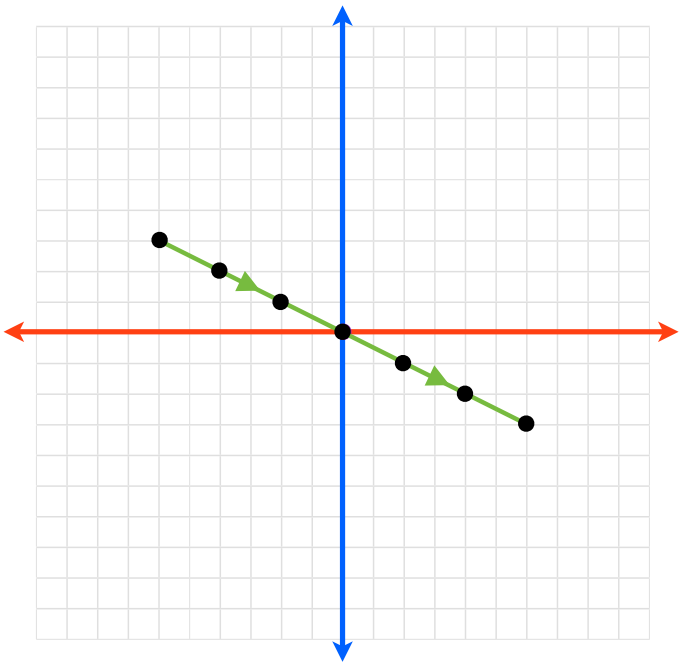


$-3 \le t \le 3$ $x = 2t$ $y = -t$

Convert to a rectangular form

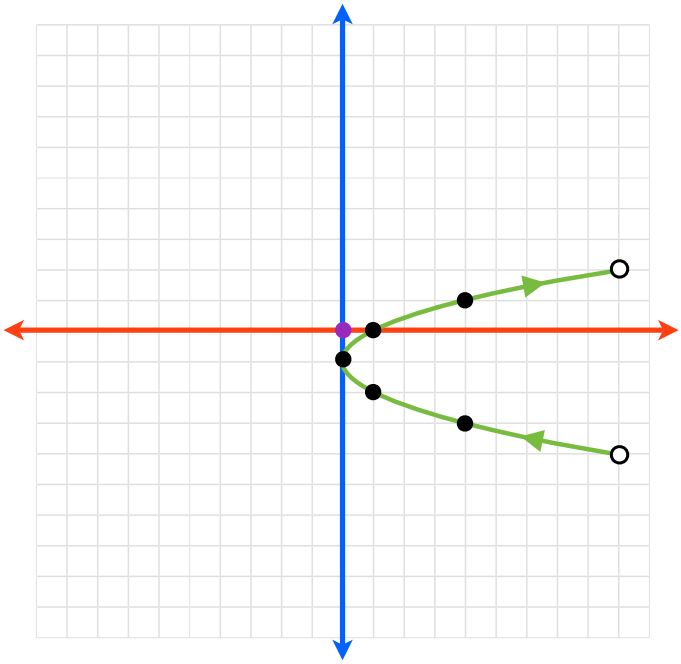
solve 1 equation for t

substitute in other equation



$-3 < t < 3$ $x = t^2$ $y = t - 1$

t	x	y	(x,y)
> -3	9	-4	(9,-4)
-2	4	-3	(4,-3)
-1	1	-2	(1,-2)
0	0	-1	(0,-1)
1	1	0	(1,0)
2	4	1	(4,1)
< 3	9	2	(9,2)



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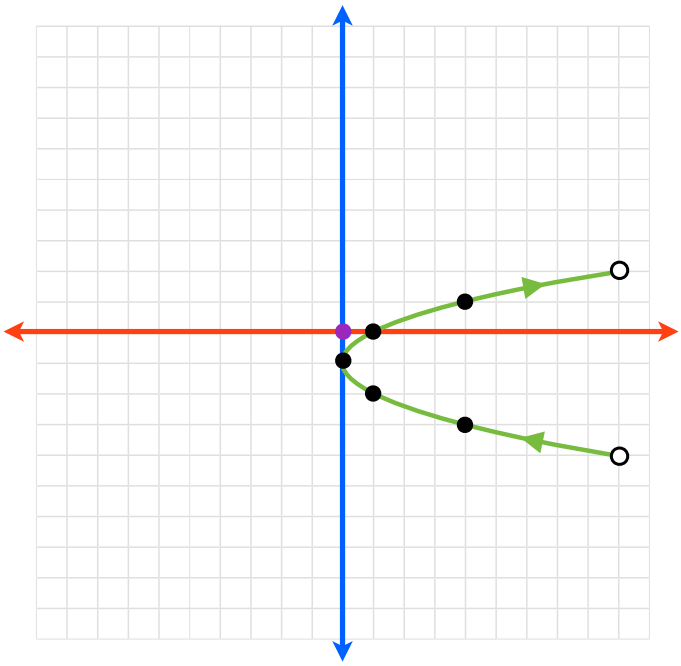
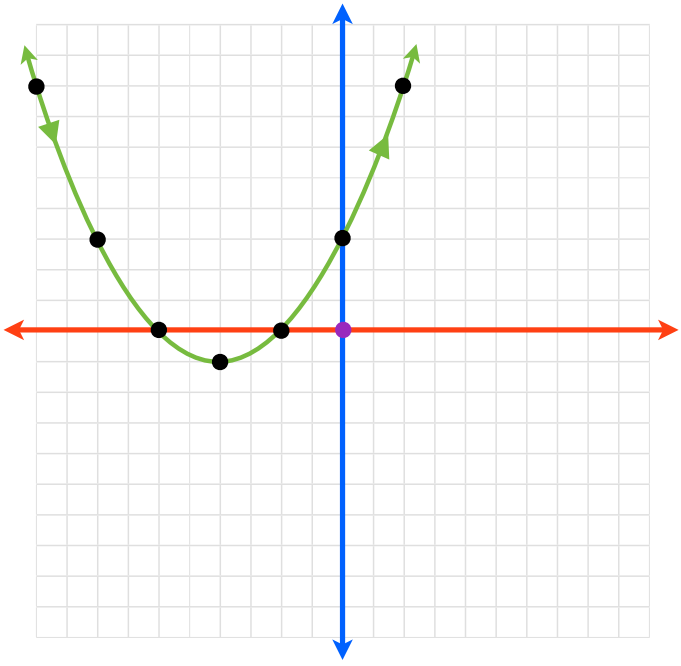


$-\infty < t < \infty$ $x = 2t - 4$ $y = t^2 - 1$

t	x	y	(x,y)
-3	-10	8	(-10,8)
-2	-8	3	(-8,3)
-1	-6	0	(-6,0)
0	-4	-1	(-4,-1)
1	-2	0	(-2,0)
2	0	3	(0,3)
3	2	8	(2,8)



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Convert to a rectangular form

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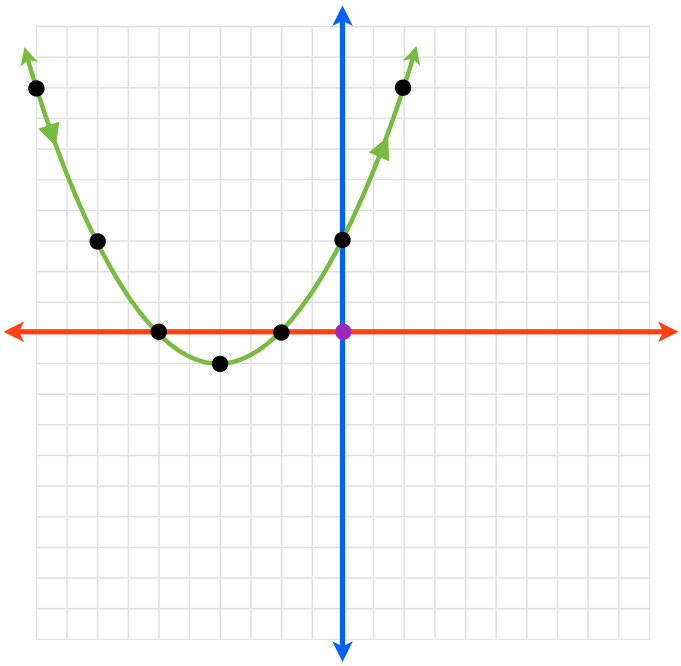
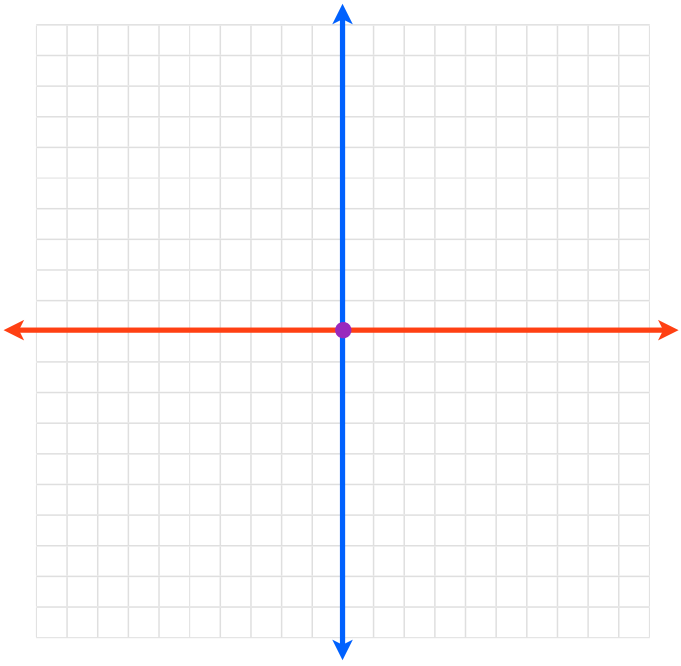
substitute in other equation



$x = 2\cos t$ $y = 2\sin t$

Convert to a rectangular form



$x = 5\cos t \qquad y = 3\sin t$

Convert to a rectangular form