

Section 4-5 Parametric Equations

If two related variables x and y both depend on a third, independent variable t , the pair of equations in x and t and y and t is called a **parametric function**.

Plot the graph of the following parametric function in degree mode:

1. $x = \cos t$
 $y = \sin t$

$t_{\min} = 0$
 $t_{\max} = 360$
 $t \text{ step} = 5$

What is it a picture of?

What would you need to change in radian mode?

2. $x = 5 \cos t$
 $y = 7 \sin t$

Use the Pythagorean Property to eliminate the parameter t . (This will give you one equation in x and y)

1. $x = \cos t$
 $y = \sin t$

2. $x = 5 \cos t$
 $y = 7 \sin t$

3. $x = 6 \cos t$
 $y = 6 \sin t$

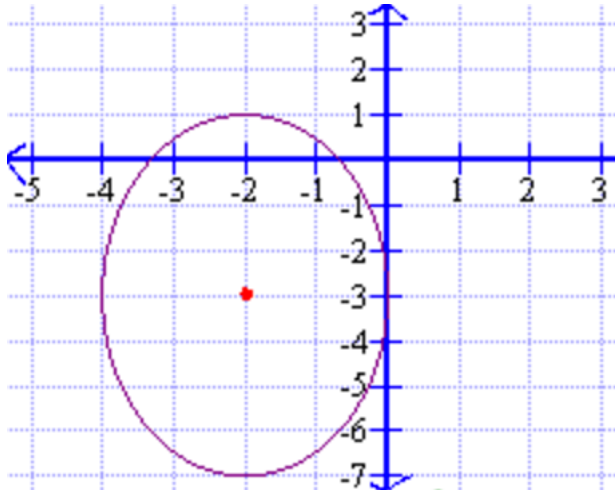
4. $x = 4 + 3 \cos t$
 $y = -1 + 6 \sin t$

General parametric equation for an ellipse:

(h, k) is center of the ellipse $x = h + a\cos T$
a is the x-radius $y = k + b\sin T$
b is the y-radius

Write parametric equations for this ellipse.

5.



6.

