

Unit 10 (Chapter 6): Parametric & Polar

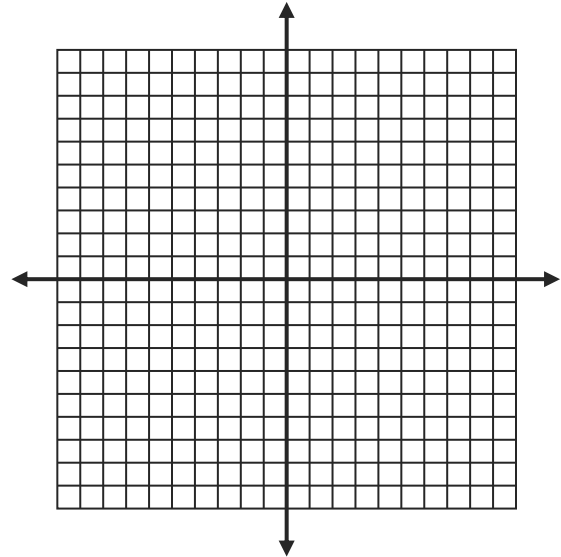
**6.3 Parametric Equations Practice**

Target 10A: Define and graph parametric equations  
 Target 10B: Perform parametric/rectangular conversions

1. a) Make a table of values and sketch the curve, indicating the direction of your graph.

$$x(t) = 1 - 2t, y(t) = 2 - t$$

$t$	$x$	$y$



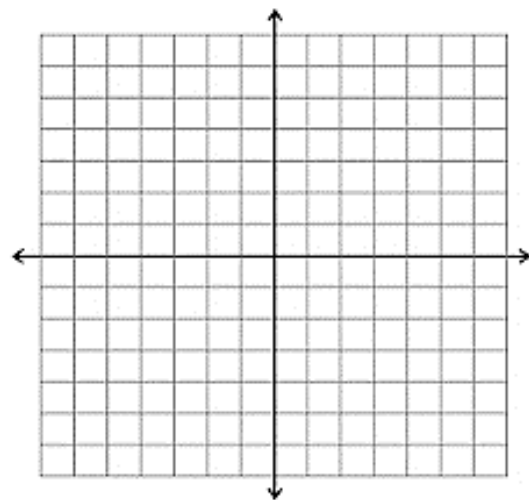
b) Eliminate the parameter of the equations above and give the resulting rectangular equation.

2. a) Make a table of values and sketch the curve, indicating the direction of your graph.

$$x(t) = t + 2, \quad t \geq 2$$

$$y(t) = \frac{4}{t}$$

$t$	$x$	$y$



b) Eliminate the parameter of the equations above and give the resulting rectangular equation.

3. ☒ Using your graphing calculator, graph the parametric equations:

$$x(t) = \cos t, \quad y(t) = \sin t$$

What does the graph look like?

4. ☒ Using your graphing calculator, graph the parametric equations:

$$x(t) = 2\sin t, \quad y(t) = 4\cos t$$

What does the graph look like?

### Converting from Parametric Trig Equations to Rectangular

Determining a Rectangular Equation for Given Parametric Trig Equations

- Use a trig identity to help convert (*i. e.*,  $\sin^2 \theta + \cos^2 \theta = 1$ )
- Solve the parametric equations for the trig functions in the trig identity & sub into trig identity.
- Rewrite the rectangular equation into a recognizable equation.

*Example 1:* Write the parametric equations in rectangular form.

$$x(t) = \frac{1}{2} \cos t, \quad y(t) = \frac{1}{2} \sin t$$

*Example 2:* Write the parametric equations in rectangular form.

$$x(t) = 2 \sin t, \quad y(t) = 4 \cos t$$

*Example 3:* Write the parametric equations in rectangular form.

$$x(t) = 3 \cos t - 1, \quad y(t) = 2 \sin t + 4$$

[Homework Assignment](#)

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