

Name _____

PARAMETRIC FUNCTIONS

You will use your graphing skills and www.desmos.com to investigate some basic properties of parametric functions.

On separate graph paper, make a table and for each parametric function and graph them on the same axes.

Graph 1

$$x = 2t - 4, y = t - 1$$

Graph 2

$$x = t - 4, y = \frac{1}{4}t^2 - 2t + 3$$

A. Do **Graph 1** and **Graph 2** intersect?

Open up the desmos page <https://www.desmos.com/calculator/rytpffjwhn>. Make sure **Graph 1** and **Graph 2** are both turned on. Use the play button to animate the graphs. After checking out the graph, do you want to change your answer to question A?

On separate graph paper, make a table for each parametric function and graph them on the same axes.

Graph 3

$$x = t - 1, y = 2t - t^2$$

Graph 4

$$x = 2t - 2, y = -3 + 8t - 4t^2$$

B. What is the same about the two graphs?

C. What is different?

Open up the desmos page <https://www.desmos.com/calculator/rytpffjwhn>. Make sure **Graph 3** and **Graph 4** are both turned on. Use the play button to animate the graphs. After checking out the graph, what can you add to your answers to B and C?

Challenge:

Find the equation of the line tangent to the graph of **Graph 2** when the parameter $a = 8$. Check your answer by graphing that equation.