

through the days along the path. Note that you might need to use the scroll arrow closest to the date information. In the table below, choose and record one point from each day of the storm. Mark each point $t = 1$, $t = 2$, etc. Track the storm for a total of at least five days so that you have a minimum of five points in the table. Use the example below to help you find the date, latitude, and longitude.

Table 1

Date	t	x (longitude)	y (latitude)
	0		
	1		
	2		
	3		
	4		

Step 3: Create a Mathematical Model.

Work through the following steps to create two parametric equations where x is a function of t and y is a function of t .

1. First plot t versus x , then plot t versus y . What kind of regression should you use for each one based on your graphs?
2. Use your calculator to create a formula for the model you have chosen. Enter the ordered pairs into lists and have the calculator create the line of best fit for your model. For example, if your path appears to be exponential, you will have a model of the form $y = ab^x$ using the ExpReg feature on the calculator.
3. Write your final equations:
 - $x(t) =$
 - $y(t) =$

Step 4: Check your model.

Plug in the values $t = 0, 1, 2, 3,$ and 4 into your parametric equations and insert your values for x and y in the table below.

Table 2

t	x (longitude)	y (latitude)
0		
1		
2		
3		
4		

Now graph the x - and y -coordinates from Table 1 onto graph paper using one color, and graph the x - and y -coordinates from Table 2 onto the same graph paper using a different color. You may either copy and paste your graph here or upload it along with this worksheet.

Compare the model points with the original points and answer the following questions:

1. How does your model compare to the actual path?
2. Why did you choose the graph family that you did? Did you choose well? Why or why not?
3. Is it possible to solve $x(t)$ for t , substitute it into $y(t)$ to eliminate the parameter, t , and write it as a rectangular equation with x and y instead? Why or why not?

Turn it in:

- Upload this worksheet into the Drop Box.
- If you did not paste a copy of your graph into the worksheet, be sure to also upload the graph into the Drop Box.