

CURVE CONTROL

Teaching Guidelines

Subject: Mathematics

Topics: Algebra—Coordinate Systems, Patterns, Relations and Functions

Grades: 9 – 12

Knowledge and Skills:

- Can plot a point in a two-dimensional coordinate system, given the coordinates, or determine the coordinates of a given point
- Can relate aspects of a graphical model to the real world situation which is being modeled

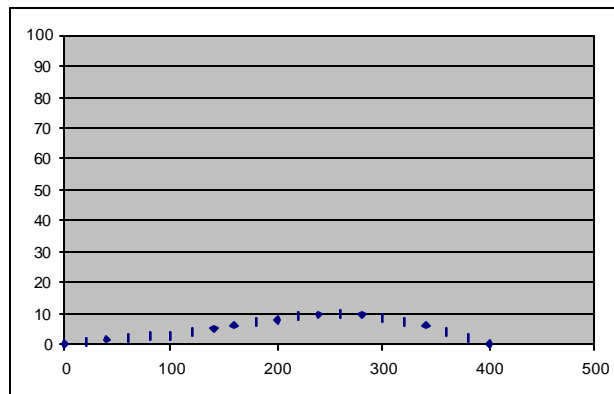
Materials: None

Procedure: This activity is best done by students working individually or in teams of two.

Distribute the handout and ensure that students understand the task.

Answers:

1.



2. and 3. Answers vary.

Curve Control

Skill Set

1. These numbers represent the shape of a windsail mast. Plot the points and sketch the shape of the mast:

x (centimeters)	y (centimeters)
0	0
20	1
40	1.5
60	2
80	2.5
100	3
120	4
140	5
160	6
180	7
200	8

x (centimeters)	y (centimeters)
220	9
240	9.5
260	10
280	9.5
300	8.5
320	7.5
340	6
360	4
380	2
400	0

2. The mast you just sketched has its highest curvature about two-thirds of the way toward the top. Create a set of numbers for a mast that has its highest curvature even closer to the top of the mast. Keep the curve as smooth as you can.

x (centimeters)	y (centimeters)
0	
20	
40	
60	
80	
100	
120	
140	
160	
180	
200	

x (centimeters)	y (centimeters)
220	
240	
260	
280	
300	
320	
340	
360	
380	
400	

3. Create a set of numbers for a mast that has its highest curvature right in the middle of the mast. Remember to keep the curve smooth.

x (centimeters)	y (centimeters)
0	
20	
40	
60	
80	
100	
120	
140	
160	
180	
200	

x (centimeters)	y (centimeters)
220	
240	
260	
280	
300	
320	
340	
360	
380	
400	