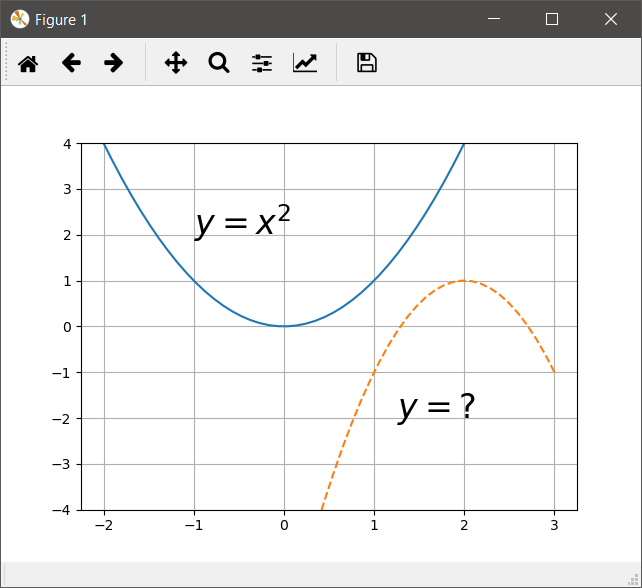
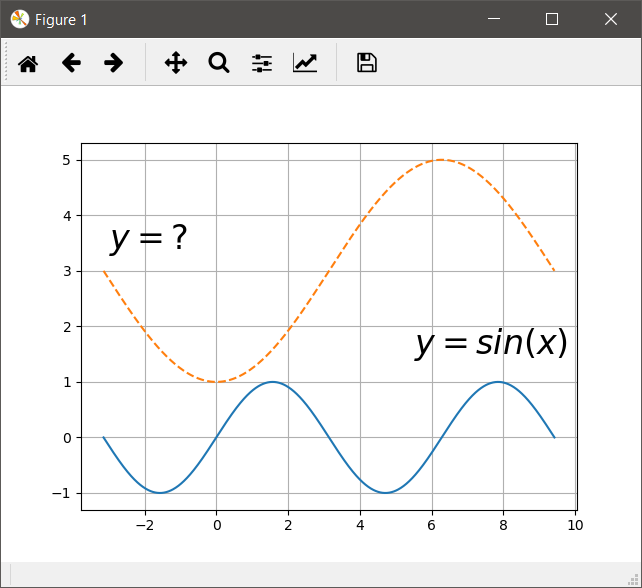
**ISTA 331 Curve-fitting Worksheet Name:**

What is the equation for the dashed curve? **y = -2 \* (x - 2)\*\*2 + 1**



What is the equation for the dashed curve in form ? What is it in form **y = 2 \* sin(x / 2 - π / 2) + 3; c = π**



Write a function called get\_parabola that takes a list of 2-element lists and returns the a, b, and c coefficients of the best fit parabola in that order. The first element of each inner list is an *x*-coordinate and the second element is the corresponding *y*-coordinate.

**def** get\_parabola**(**xy\_lst**):**

x **=** np**.**array**([**coords**[**0**]** **for** coords **in** xy\_lst**])**

y\_lst **=** **[**coords**[**1**]** **for** coords **in** xy\_lst**]**

X **=** np**.**column\_stack**([**x**,** x**\*\***2**])**

X **=** sm**.**add\_constant**(**X**)**

model **=** sm**.**OLS**(**y\_lst**,** X**)**

results **=** model**.**fit**()**

# results.params is an array because we fit to a list, not a Series

# order is reversed (sort of) compared to if it was a Series

**return** results**.**params**[**2**],** results**.**params**[**1**],** results**.**params**[**0**]**