

The screenshot shows the Shodor DataFlyer interface. At the top, there are navigation tabs: **Learner**, **Activity** (selected), **Help**, and **Instructor**. The main area displays a graph with a blue curve fitted to data points. A tooltip for the point (4.00, 4.24) is visible. Below the graph, the function is displayed as  $f(x) = 0.416 * x * x - 0.641 * x + 0.152$ . There are three sliders below the equation, and buttons for "Change Function", "Reset Sliders", and "Slider Limits...". To the right, a control panel includes a "Show Deviations" button, a "Sum of squares of deviations: 0.029" label, a "Show Squares" checkbox (checked), a "Data:" table, "Plot Data" and "Clear Data" buttons, an "Auto Scale" checkbox (checked), a "Show Vertical Asymptotes" checkbox (unchecked), a "Show Tabular Data" button, radio buttons for "No Grid", "Light Grid Lines" (selected), and "Dark Grid Lines", a "Set Window..." button, a "Show Trace" checkbox (unchecked), and a "Clear Trace" button. A copyright notice "© Shodor" is at the bottom center.

x	y
1	0
2	0.482
3	1.9
4	4.213
5	7.379
6	11.356
7	16.103
8	21.578

<http://shodor.org/interactivate/activities/DataFlyer/>

## Independent and Dependent Variables

[Shodor](#) > [Interactivate](#) > [Discussions](#) > Independent and Dependent Variables

Mentor: Today we are going to discuss independent and dependent variables. What does it mean for something to be independent?

Student: That means that it doesn't depend on anything else.

Mentor: That's right! So what do you think it means for a variable to be independent?

Student: Maybe that variable doesn't depend on the other variables or numbers.

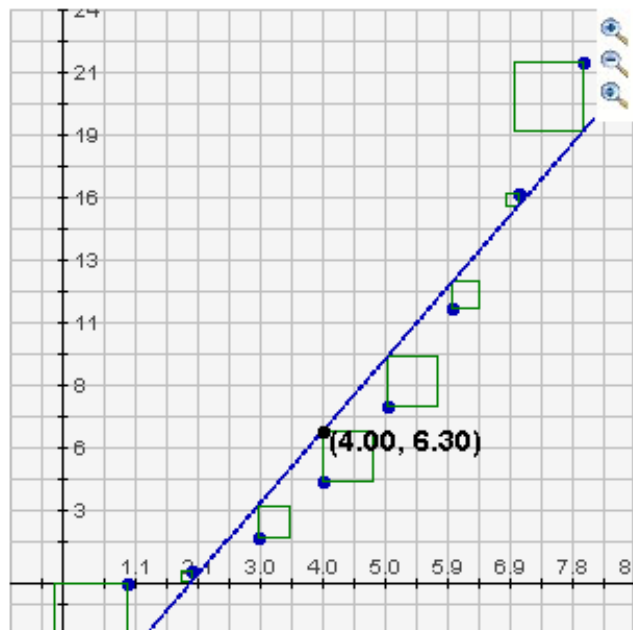
Mentor: Correct. In mathematical terms, we call a variable independent if its value can be set arbitrarily to get a result. This is known as the *input* of a function. Do you know what I mean by "input"?

Student: That's the variable that you start with. You know that variable, then you do something to it, and you get the "output".

<http://shodor.org/interactivate/discussions/IndependentDependentVariables/>

Show Deviations

Sum of squares of deviations: 29.121



$$f(x) = 3.1 * x - 6.1$$

Change Function

Reset Sliders

Slider Limits...

Show Squares

Data:

1	0
2	0.482
3	1.9
4	4.213
5	7.379
6	11.356
7	16.103
8	21.578

Plot Data

Clear Data

Auto Scale

Show Vertical Asymptotes

Show Tabular Data

No Grid

Light Grid Lines

Dark Grid Lines

Set Window...

# Data Flyer

Shodor > Interactivate > Activities > Data Flyer

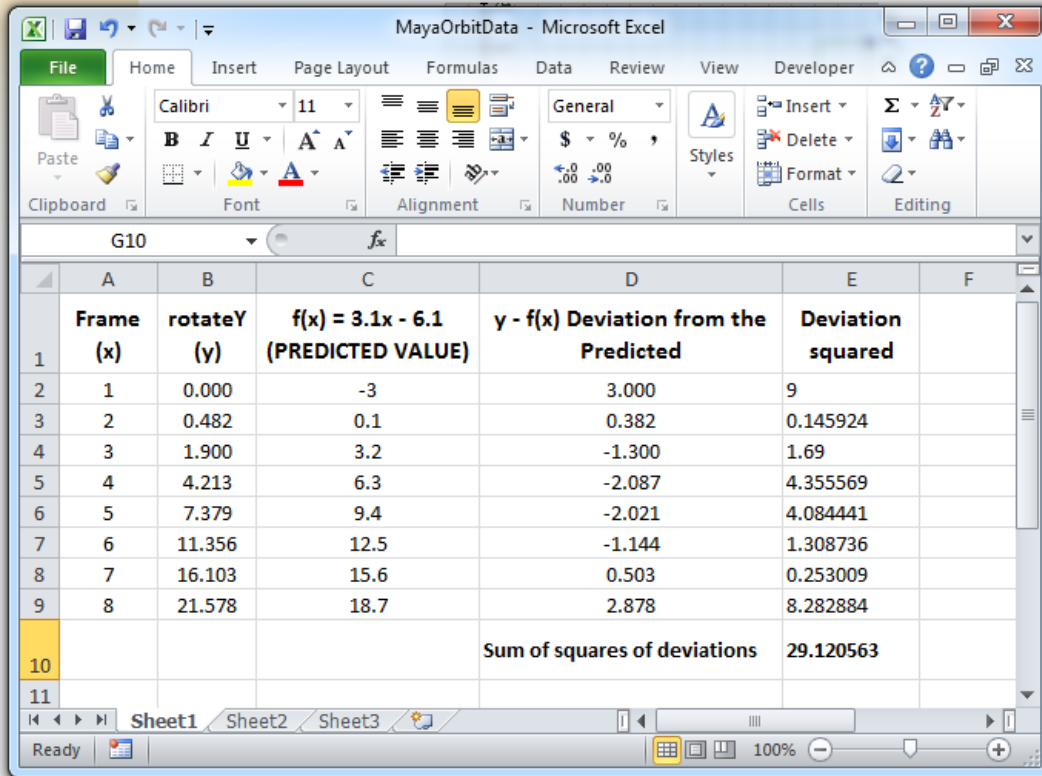
Learner

Activity

Help

Instructor

Show Deviations Sum of squares of deviations: 29.121



Show Squares

Data:

1 0  
2 0.482  
3 1.9  
4 4.213  
5 7.379  
6 11.356  
7 16.103  
8 21.578

Plot Data

Clear Data

Auto Scale

Show Vertical Asymptotes

Show Tabular Data

No Grid

Light Grid Lines

Dark Grid Lines

Set Window...

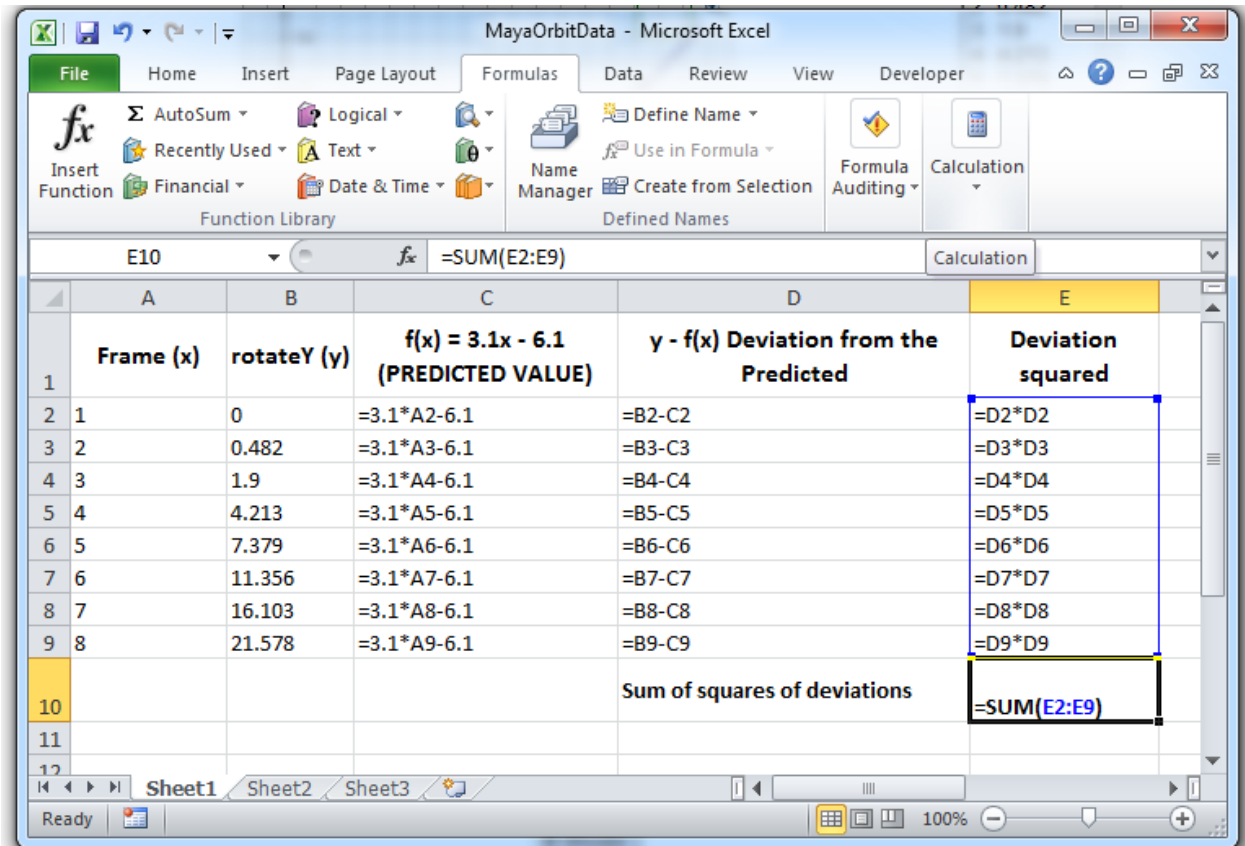
Show Trace

Clear Trace

## Practice Exercise:

Try this set of 4 pairs of (x, y) values using Data Flyer:

1	1	(1, 1)
1	3	(1, 3)
5	6	(5, 6)
5	10	(5, 10)



Using the Data Flyer application, find the best fitting LINEAR EQUATION for the following 15 pairs of (x, y) values.  $f(x) = m x + b$  or  $y = m * x + b$  or  $y = mx + b$ .

You are finding values for the SLOPE m and the INTERCEPT b for the equation.

- 46 55
- 50 55
- 48 59
- 45 56
- 31 68
- 45 63
- 50 53
- 18 79
- 28 72
- 24 72
- 34 68
- 20 71
- 28 72
- 13 82
- 13 81

What is the sum of the squares of the deviations for your function?