

# Doing Math with Python

Use Programming to Explore Algebra, Statistics, Calculus, and More!

by Amit Saha

errata updated to print 7

Page	Error	Correction	Print corrected
8	... they take a string as input ('1') and return a number (2 or 2.0)	... they take a string as input ('1') and return a number (1 or 1.0)	Print 3
47	The x-axis of the graph displays the <b>force</b> , and the y-axis displays the <b>distance</b>	The x-axis of the graph displays the <b>distance</b> , and the y-axis displays the <b>force</b>	Print 7
48	<i>Figure 2-12: Visualization of the relationship between the gravitational force and the <b>squared</b> distance</i>	<i>Figure 2-12: Visualization of the relationship between the gravitational force and the distance</i>	Print 3
52	At ❷, we calculate the time of flight and then call the frange() function with the values for start, final, and <b>increment</b> set to 0, t_flight, and 0.001, respectively.	At ❷, we calculate the time of flight and then call the frange() function with the values for start, final, and <b>interval</b> set to 0, t_flight, and 0.001, respectively.	Print 7
55	The for loop starting at ❷ calculates the value of the function above for each of these values and uses the label y to refer to the <b>list of results</b> .	The for loop starting at ❷ calculates the value of the function above for each of these values and uses the label y to refer to the <b>result</b> .	Print 3
76	Ice cream sales and crime are correlated because they both go up as the weather gets hotter during the summer.	Ice cream sales and crime <b>rate</b> are correlated because they both go up as the weather gets hotter during the summer.	Print 3
77	<pre>y_square=[] for yi in y:     y_square.append(yi**2)</pre>	<pre>y_square=[] for yi in y:     y_square.append(yi**2)</pre>	Print 7
87	Insertion	If you are unable to access the service, download a copy of the file from <a href="https://github.com/doingmathwithpython/code/blob/master/chapter3/solutions/correlatesummer.csv">https://github.com/doingmathwithpython/code/blob/master/chapter3/solutions/correlatesummer.csv</a> .	Print 7
97	<pre>&gt;&gt;&gt; factors = factor(expr) &gt;&gt;&gt; expand(factors) x**2 - y**2</pre>	<pre>&gt;&gt;&gt; from sympy import expand &gt;&gt;&gt; factors = factor(expr) &gt;&gt;&gt; expand(factors) x**2 - y**2</pre>	Print 3

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99	<pre> ❶ series = x ❷ for i in range(2, n+1):     ❸ series = series + (x**i)/i pprint(series) </pre>	<pre> ❶ series = x ❷ for i in range(2, n+1):     ❸ series = series + (x**i)/i pprint(series) </pre>	Print 4
112	<pre> from sympy import Symbol, sympify, solve </pre>	<pre> from sympy import Symbol, sympify, solve, SympifyError </pre>	Print 4
115	... (using the first letter of the color in each case).	... (using the first letter of the color in each case, <b>except black for which you use 'k'</b> ).	Print 7
132	<pre> def probability(space, event):     return len(event)/len(space) </pre>	<pre> from sympy import FiniteSet  def probability(space, event):     return len(event)/len(space) </pre>	Print 7
132	<pre> for num in s:     ❸ if check_prime(num):         primes.append(num) </pre>	<pre> for num in space:     ❸ if check_prime(num):         primes.append(num) </pre>	Print 2
135	Deletion	<pre> <del>import matplotlib.pyplot as plt</del> </pre>	Print 7
139	<pre> probability = [1/6, 1/6, 1/3, 2/3] </pre>	<pre> probability = [1/6, 1/6, 1/3, 1/3] </pre>	Print 2

Page	Error	Correction	Print corrected
164-165	<p><b>Transformation 1</b> (0.85 probability):</p> $x_{n+1} = 0.85x_n + 0.04y_n$ $y_{n+1} = -0.04y_n + 0.85y_n + 1.6$ <p><b>Transformation 2</b> (0.07 probability):</p> $x_{n+1} = 0.2x_n - 0.26y_n$ $y_{n+1} = 0.23y_n + 0.22y_n + 1.6$ <p><b>Transformation 3</b> (0.07 probability):</p> $x_{n+1} = -0.15x_n - 0.28x_n$ $y_{n+1} = 0.26y_n + 0.24y_n + 0.44$ <p><b>Transformation 4</b> (0.01 probability):</p> $x_{n+1} = 0$ $y_{n+1} = 0.16y_n$	<p><b>Transformation 1</b> (0.85 probability):</p> $x_1 = 0.85x + 0.04y$ $y_1 = -0.04x + 0.85y + 1.6$ <p><b>Transformation 2</b> (0.07 probability):</p> $x_1 = 0.2x - 0.26y$ $y_1 = 0.23x + 0.22y + 1.6$ <p><b>Transformation 3</b> (0.07 probability):</p> $x_1 = -0.15x + 0.28y$ $y_1 = 0.26x + 0.24y + 0.44$ <p><b>Transformation 4</b> (0.01 probability):</p> $x_1 = 0$ $y_1 = 0.16y$	Print 3
194	<code>abs(x_old - x_new) &gt; epsilon</code>	<code>abs(x_old - x_new) &lt;= epsilon</code>	Print 3
195	<pre>from sympy import Derivative, Symbol, sympify</pre>	<pre>from sympy import Derivative, Symbol, sympify, SympifyError</pre>	Print 4
213	URL replacement	Anaconda ( <a href="https://www.anaconda.com/distribution/">https://www.anaconda.com/distribution/</a> ) ...	Print 3
226	<code>x, y = components(theta)</code>	<code>x, y = components(u, theta)</code>	Pending