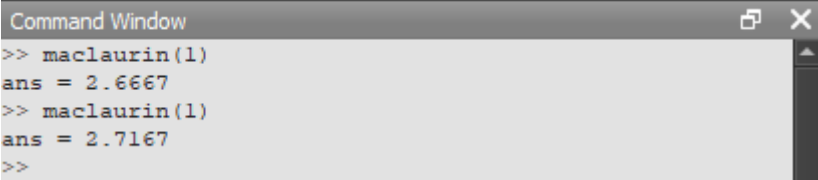
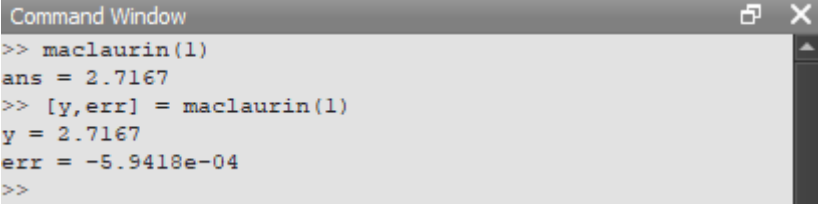
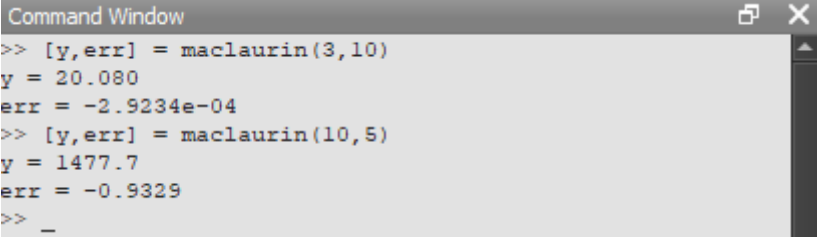


Material	Quest	Worksheet
Function, Multi Output, Multi Input	Task 1	<p>► TASK 1: Modify <code>emac.m</code> so that the command <code>emac(x)</code> returns an estimate of e^x using the Maclaurin series with terms up to x^5 (I'll call this the <i>5th-order series</i>). Test it to make sure that it is more accurate than the cubic series.</p>
	Answer	 <pre> Command Window >> maclaurin(1) ans = 2.6667 >> maclaurin(1) ans = 2.7167 >> </pre>
	Code	<pre> ## Author: izzar <izzar@AVEZOOOR> function y = maclaurin(x) %emac(x) gives the value of e^x using Maclaurin series up to x^3 y = 1 + x + x^2/2 + x^3/6 + x^4/24 + x^5/120; end </pre>
	Task 2	<p>► TASK 2: Modify <code>emac.m</code> so that it gives an output of the form <code>[y,err]</code>, where y = 5th-order Maclaurin estimate for e^x, and <code>err</code> = the fractional error.</p>
	Answer	 <pre> Command Window >> maclaurin(1) ans = 2.7167 >> [y,err] = maclaurin(1) y = 2.7167 err = -5.9418e-04 >> </pre>
	Code	<pre> ## Author: izzar <izzar@AVEZOOOR> function [y,err] = maclaurin(x) %emac(x) gives the value of e^x using Maclaurin series up to x^3 %y = Maclaurin's series for e^x, err = error y = 1 + x + x^2/2 + x^3/6 + x^4/24 + x^5/120; err = (y - exp(x))/exp(x); end </pre>
	Task 3	<p>► TASK 3: Modify <code>emac.m</code> so that it takes 2 inputs (x,N) (where x is a number, and N is an integer) and produces two outputs <code>[y,err]</code>, as described above.</p>
	Answer	 <pre> Command Window >> [y,err] = maclaurin(3,10) y = 20.080 err = -2.9234e-04 >> [y,err] = maclaurin(10,5) y = 1477.7 err = -0.9329 >> _ </pre>
	Code	<pre> ## Author: izzar <izzar@AVEZOOOR> function [y,err] = maclaurin(x,N) %emac(x) gives the value of e^x using Maclaurin series up to x^3 %create an array n for natural number n = 0:N; %terms = Maclaurin's series for e^x, err = error terms = (x.^n) ./ factorial(n); %sum up all the elements of array terms y = sum(terms); err = (y - exp(x))/exp(x); end </pre>