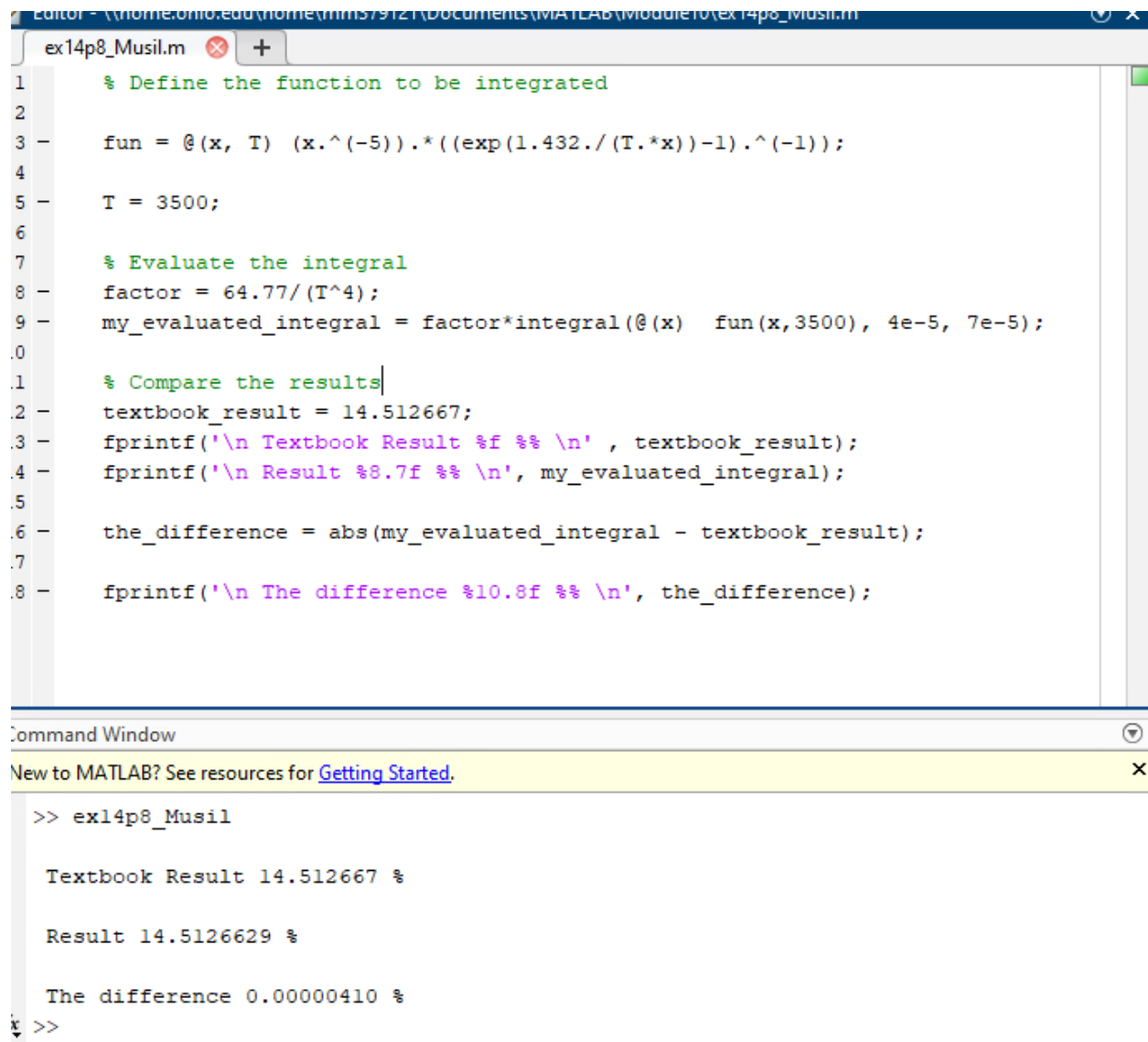


1. Do a variation of exercise 14.8 on page 327-328 of the textbook. Specifically, utilize either the MATLAB® function “quad” or, preferably, the MATLAB® function “integral” instead of Simpson’s rule. Submit your program in an m-file named “ex14p8\_LastName.m”. Make sure to specify “format long” to see the difference in the result versus the results with Simpson’s rule described in the exercise 14.8 description.



The image shows a MATLAB environment with the Editor window displaying the script 'ex14p8\_Musil.m' and the Command Window showing the execution results. The script defines a function 'fun' and evaluates the integral using the 'integral' function. The Command Window output shows the textbook result, the evaluated result, and the difference between them.

```
Editor - (home.ohio.edu/home/nmms79121/Documents/MATLAB/Module10/ex14p8_Musil.m)
ex14p8_Musil.m
1 % Define the function to be integrated
2
3 fun = @(x, T) (x.^(-5)).*((exp(1.432./(T.*x))-1).^(-1));
4
5 T = 3500;
6
7 % Evaluate the integral
8 factor = 64.77/(T^4);
9 my_evaluated_integral = factor*integral(@(x) fun(x,3500), 4e-5, 7e-5);
10
11 % Compare the results
12 textbook_result = 14.512667;
13 fprintf('\n Textbook Result %f %% \n' , textbook_result);
14 fprintf('\n Result %8.7f %% \n', my_evaluated_integral);
15
16 the_difference = abs(my_evaluated_integral - textbook_result);
17
18 fprintf('\n The difference %10.8f %% \n', the_difference);

Command Window
New to MATLAB? See resources for Getting Started.
>> ex14p8_Musil

Textbook Result 14.512667 %

Result 14.5126629 %

The difference 0.00000410 %
>>
```

- Following the screencast, implement a function m-file named "nonlinear\_circuit\_LastName.m" that implements the system of two differential equations describing voltages  $v_1$  and  $v_2$  in the nonlinear circuit example. Use the provided driver file "nonlinear\_solver.m" to solve the system of differential equations and plot out the source voltage and voltages  $v_1$  and  $v_2$ .

