Lab 3 Tasks

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Question 1:

This function was taken from the book *"THOMAS CALCULUS"*

Solution:

```
derivative =

(2^(1/2)*cos(x^(1/2)))/(4*x) - (2^(1/2)*sin(x^(1/2)))/(4*x^(3/2))


integral =

-2^(1/2)*cos(x^(1/2))
```

Question 2:

Different values of n was used for x=e^25. We got to the conclusion they never converge.

Question 3:

```
>> calculateExtremeValues(sin(x)+cos(x),[0,2*pi])

minimum =

   -1.4142


maximum =

    1.4142
```

&

```
>> calculateExtremeValues(x^4 - 3*x^3 -1,[-2,2])

minimum =

    -9


maximum =

    39
```

Question 4:

Numerical analysis is all about dealing with the aspects of the numerical solution of a given problem, from the theoretical development to their practical implementation. It has various applications in all fields of science and some fields of engineering, and especially computer science & engineering. The point of numerical analysis is to analyze methods that are used to give approximate number solutions to situations where it is unlikely to find the real solution quickly, and to try and improve upon these methods so as to reduce the amount of error generated by computer calculation. These are just a few to name.