

Revision Thu:

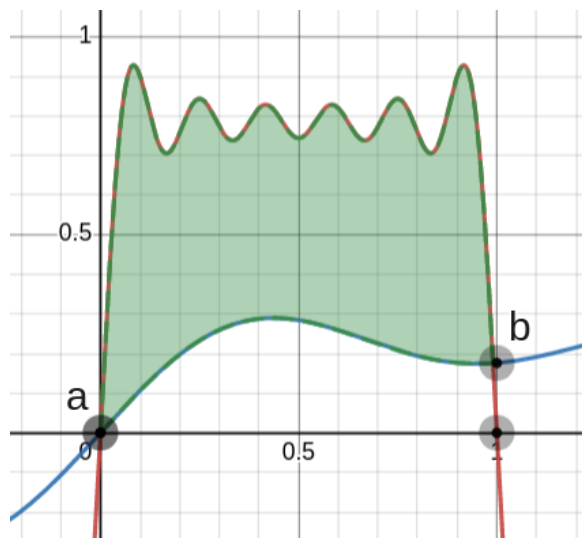
4. a. This time calculate the area by using the function $f(x) = x^2 * \cos(x) * \sin(x)$, with the following parameters: $step_size = 0.005$, $x_start = 0$, $x_end = \pi/2$ (use `Math.PI`).

Sample run:

```
The function is: x^2 * cos(x) * sin(x)
Parameters:
x_start = 0, x_end = π / 2
step_size = 0.005
Area under "x^2 * cos(x) * sin(x)" from 0 to π/2: "x.xxx.."
```

4. b. In Question 4, you were given the first two terms of a series expansion where $n = 2$. Basically we are multiplying the inside of the sine function by the odd number in the series and dividing the sine function by the same odd number. Then we add the result to the previous one. Your task is to calculate the area.

However, this time you must create and calculate the output of your function in an iterative manner (hence the need for nested loops). This function is the expansion of the series for the given n value.



For this revision, you are to calculate the (green in above example) area **between** the function which is the series expansion of the $\sum_{k=1}^n \frac{\sin((2k-1)*\pi*x)}{2k-1}$ for $n = 6$, and another series that is $\sum_{k=1}^n 0.2 * \frac{\sin(k*x)}{k}$ for $n = 6$ with the following parameters: $step_size = 0.01$, $x_start = 0$, $x_end = 1$.

```
Parameters:
x_start = 0, x_end = 1
step_size = 0.01
Total area: "x.xxx.."
```