

Program 4

Due Friday, November 8, 2024

1. Write a subroutine to approximate the derivative of y at the given knots. Its first line should be:

```
function dy = yprime02(x,y)
```

where (x_i, y_i) , $i = 1 : N$ is a set of points (knots) over a uniform grid ($x_{i+1} - x_i = h$, $i = 1 : N - 1$) and dy_i is an approximation of $\frac{dy}{dx}$ evaluated at $x = x_i$, $i = 1 : N$ accurate to $O(h^2)$ (dy_i is the approximate slope of y at x_i).

2. Email me and turn in this output along with your source code (yprimeO2.m and prog4run.txt).