worksheet1BasicExperiencedCodingExcercises

Tanith Norris

2022-06-06

```
## Basic Parameters

  dIndex <- c(0:2)                    ## power to which polynomial is raised
  coefficients <- c(3, 4, 1)          ## coefficients of terms in polynomial
  range <- c("1st", "2nd", "3rd")     ## terms in polynomial (used as matrix column name)
  n <- c(dIndex)
  x <- c(coefficients)

## Basic Definitions - Establishing Beginning Matrix

  derivative <- dIndex * coefficients

  beegMatrix <- matrix(c(coefficients), nrow = 1, ncol = 3, byrow = TRUE)

  rowNamesVector <- c("Coefficient")
  rownames(beegMatrix) <- rowNamesVector

  colNamesVector <- c(range)
  colnames(beegMatrix) <- colNamesVector

## Print to see it in original form

  beegMatrix
```

```
##             1st 2nd 3rd
## Coefficient   3   4   1
```

```
## Attempt 1st Derivative

    beegMatrix1stDeriv <- beegMatrix * dIndex

     beegMatrix1stDeriv
```

```
##             1st 2nd 3rd
## Coefficient   0   4   2
```

```
## Attempt 2nd Derivative

     dIndex2nd <- dIndex - 1

    ## for the nth derivative, create dIndexNth <- dIndex - (n-1)

  beegMatrix2ndDeriv <- beegMatrix1stDeriv * dIndex2nd
```

```
  beegMatrix2ndDeriv
```

```
##             1st 2nd 3rd
## Coefficient   0   0   2
```

```
## Attempt 3rd Derivative
```