NUMERICAL METHODS – HW5

You can write your answers in English or Turkish, however, it is encouraged to use the English. Please use the given word template (in the uzem website), send it as pdf.

Q1 (30 Points). Apply *Newton's Interpoliton* on given function and given values. Then find answers of following tasks. $f(x) = 13 - 2x + x^2$

    (i)   (20) Show interpolated model f(x_3) for $x_3=2$ based on the x_0, x_1, x_2.

    (ii)   (10) Show true value and estimated value of f x_3).

	x_i	$f(x_i)$
$x_0=$	0	13
$x_1=$	1	11
$x_2=$	3	16
$x_3=$	2	?

Q2. (35 Points) Find integratation of given function between [1,9]. You have to show formulas for each segment. $f(x) = 8 - 2x + x^2$

    (i)   (5) Show true integration value.

    (ii)   (30) Use Simpson's 1/3 rule with n=4 segments. Show estimated integration value.

Q3. (35 Points) Find integratation of given function between [1,9]. You have to show formulas for each segment. $f(x) = 8 - 2x + x^2$

    (iii)   (5) Show true integration value.

    (iv)   (30) Use Trapizodial rule with n=4 segments. Show estimated integration value.