Vu Buddy- MTH603

1. **[math-block] For\,the\,given\,data\,{\text{points}}\,(1, - 3),\,(2,0),\,and\,(3,15),\,the\,zero - order\,divide\,difference\,will\,be\, [/math-block]**

    a. -2

    b. -3

    c. -1

    d. 0

2. **Given the following data x:1 2 5 y:1 4 10 Value of 1st order divided difference f[2 , 5] is**

    a. 2

    b. 0

    c. -2

    d. 1

3. **[math-block] If\,only\,two\,data\,{\text{point}}s\,are\,given,\,the\,formula\,for\,Lagrange's\,{\text{interpolation}}\,polynomial\,will\,be [/math-block]**

    a. [math-block] y = f(x) = \frac{{(x - {x_1})}}{{({x_0} - {x_1})}}{y_0} + \frac{{(x - {x_0})}}{{({x_1} - {x_0})}}{y_1} [/math-block]

    b. [math-block] y = f(x) = \frac{{({x_1} - {x_0})}}{{(x - {x_0})}}{y_0} + \frac{{({x_0} - {x_1})}}{{(x - {x_1})}}{y_1} [/math-block]

    c. [math-block] y = f(x) = \frac{{(x - {x_0})}}{{({x_0} - {x_1})}}{y_0} + \frac{{(x - {x_1})}}{{({x_1} - {x_0})}}{y_1} [/math-block]

    d. [math-block] y = f(x) = \frac{{(x - {x_0})}}{{({x_1} - {x_0})}}{y_0} + \frac{{(x - {x_1})}}{{({x_0} - {x_1})}}{y_1} [/math-block]

4. **[math-block] \begin{gathered} What\,will\,be\,the\,value\,of\,'a'\,in\,the\,given\,divide\,diffidence\,table? \hfill \\ \begin{array}{*{20}{c}} x&y&{1stD.D}&{2ndD.D}&{3rdD.D} \\\ 1&{0.7}&{0.25}&{0.025}&{} \\\ 3&{1.2}&{0.35}&{ - 0.0625}&a \\\ 5&{1.9}&{0.1}&{}&{} \\\ 7&{2.1}&{}&{}&{} \end{array} \hfill \\\ \end{gathered} [/math-block]**

    a. -0.0387

    b. -0.0146

    c. -0.0021

    d. -0.0245

5. **Given the following data x:4 5 7 10 y:46 102 294 346 Value of 1st order divided difference f[5 , 7] is**

    a. 92

    b. 94

    c. 96

    d. 91

6. **[math-block] For\,the\,given\,data\,{\text{points}}\,({x_{0,}}{y_0}),\,({x_1}{y_1}),\,({x_2}{y_2}),\,and\,({x_{3,}}{y_3})\,\,the\,first - order\,divide\,difference\,will\,be\,given\,as [/math-block]**

    a. [math-block] y[{y_0},{y_1},{y_2}] [/math-block]

    b. [math-block] y[{x_0},{x_1},{x_2}] [/math-block]

    c. [math-block] y[{x_0},{x_1}] [/math-block]

    d. [math-block] y[{x_0}] [/math-block]

7. **[math-block] For\,the\,given\,data\,{\text{points}}\,(1, - 3),\,(2,0),\,and\,(3,15),\,the\,first - order\,divide\,difference\,will\,be\, [/math-block]**

    a. 3

    b. -3

    c. -2

    d. 2

8. **In Lagrange’s interpolation, for n values of y corresponding to n values of x, we can represent the function f (x) by a polynomial of degree**

    a. n-1

    b. n+1

    c. n+2

    d. n

9. **[math-block] \begin{gathered} For\,the\,giev\,three\,data\,{\text{point}}s,\,the\, {\text{degree}}\,of\,Lagrange's\,{\text{interpolation}}\,polynomial\,could\,be \hfill \\ \begin{array}{*{20}{c}} x&{0.3}&{0.7}&{0.9} \\\ y&{0.067}&{0.248}&{0.518} \end{array} \hfill \\\ \end{gathered} [/math-block]**

    a. [math-block] y = f(x) = \frac{{(x - 0.7)(x - 0.9)}}{{(0.3 - 0.7)(0.3 - 0.9)}}(0.248) + \frac{{(x - 0.3)(x - 0.9)}}{{(0.7 - 0.3)(0.7 - 0.9)}}(0.067) + \frac{{(x - 0.3)(x - 0.7)}}{{(0.9 - 0.3)(0.9 - 0.7)}}(0.518) [/math-block]

    b. [math-block] y = f(x) = \frac{{(x - 0.7)(x - 0.9)}}{{(0.3 - 0.7)(0.3 - 0.9)}}(0.518) + \frac{{(x - 0.3)(x - 0.9)}}{{(0.7 - 0.3)(0.7 - 0.9)}}(0.248) + \frac{{(x - 0.3)(x - 0.7)}}{{(0.9 - 0.3)(0.9 - 0.7)}} (0.067) [/math-block]

    c. [math-block] y = f(x) = \frac{{(x - 0.7)(x - 0.9)}}{{(0.3 - 0.7)(0.3 - 0.9)}}(0.067) + \frac{{(x - 0.3)(x - 0.9)}}{{(0.7 - 0.3)(0.7 - 0.9)}}(0.518) + \frac{{(x - 0.3)(x - 0.7)}}{{(0.9 - 0.3)(0.9 - 0.7)}}(0.248) [/math-block]

    d. [math-block] y = f(x) = \frac{{(x - 0.7)(x - 0.9)}}{{(0.3 - 0.7)(0.3 - 0.9)}}(0.067) + \frac{{(x - 0.3)(x - 0.9)}}{{(0.7 - 0.3)(0.7 - 0.9)}}(0.248) + \frac{{(x - 0.3)(x - 0.7)}}{{(0.9 - 0.3)(0.9 - 0.7)}}(0.518) [/math-block]

10. **If [math] f(x) = 2{x^3} - 5{x^2} + 9x - 6 [/math] , then its------derivative is zero for all x.**

    a. 3rd

    b. 2nd

    c. 4th

    d. 5th