

*** ques 1**

```
In[28]:= sum = 0;
points = {{1, 2}, {2, 5}, {3, 10}};
n = Length[points]
y = points[[All, 1]]
f = points[[All, 2]]
dd[k_] :=
  Sum[
    (f[[i]] / Product[If[Equal[j, i], 1, {y[[i]] - y[[j]]}], {j, 1, k}], {i, 1, k})
  p[x_] =
  Sum[
    (dd[i] * Product[If[i ≤ j, 1, x - y[[j]]], {j, 1, i - 1}], {i, 1, n})
  Simplify[p[x]]
  Evaluate[p[2.5]]
```

Out[30]= 3

Out[31]= {1, 2, 3}

Out[32]= {2, 5, 10}

Out[34]= {2 + 3 (-1 + x) + (-2 + x) (-1 + x)}

Out[35]= {1 + x²}

Out[36]= {7.25}

■ ques 2

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In[37]:= sum = 0;
points = {{3, 293}, {5, 508}, {6, 585}, {9, 764}};
n = Length[points]
y = points[[All, 1]]
f = points[[All, 2]]
dd[k_] :=
  Sum[
    (f[[i]] / Product[If[Equal[j, i], 1, {y[[i]] - y[[j]]}], {j, 1, k}], {i, 1, k})
  ]
p[x_] =
  Sum[
    (dd[i] * Product[If[i ≤ j, 1, x - y[[j]]], {j, 1, i - 1}], {i, 1, n})
  ]
Expand[p[x]]
Evaluate[p[2.5]]

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Out[39]= 4

Out[40]= {3, 5, 6, 9}

Out[41]= {293, 508, 585, 764}

Out[43]= $\left\{ 293 + \frac{215}{2}(-3 + x) - \frac{61}{6}(-5 + x)(-3 + x) + \frac{35}{36}(-6 + x)(-5 + x)(-3 + x) \right\}$

Out[44]= $\left\{ -\frac{539}{2} + \frac{3001}{12}x - \frac{214}{9}x^2 + \frac{35}{36}x^3 \right\}$

Out[45]= {222.288 }