```
LagrangePoly[x0_, f0_] :=
 Module[{xi = x0, fi = f0, n, m, ploy}, n = Length[xi];
  m = Length[fi];
  If[n ≠ m, Print["List of points and function values are not of same size"];];
  For[i = 1, i ≤ n, i++,
   L[i, x_] = (Product[Divide[x - xi[[j]], xi[[i]] - xi[[j]]], {j, i - 1}]) *
      (Product[Divide[x - xi[[j]], xi[[i]] - xi[[j]]], {j, i + 1, n}]);];
  poly[x_] = Sum[L[k, x] * fi[[k]], {k, n}];
  Return[poly[x]];]
```

Question 1

```
abscissas = {0, 1, 3};
functionvalues = {1, 3, 55};
LagrangePoly[x_] = Simplify[LagrangePoly[abscissas, functionvalues]];
Print["Lagrange Polynomial = ", LagrangePoly[x]]
```

```
Lagrange Polynomial = 1 - 6 x + 8 x^2
```

In[6]:=
```
LagrangePoly[2]
```

Out[6]= 21

Question 2

In[25]:=
```
abscissas = {1, 3, 5, 7, 9};
functionvalues = {N[Log[1]], N[Log[3]], N[Log[5]], N[Log[7]], N[Log[9]]};
LagrangePoly[x_] = Simplify[LagrangePoly[abscissas, functionvalues]];
Print["Lagrange Polynomial = ", LagrangePoly[x]];
Plot[{LagrangePoly[x], Log[x]}, {x, 1, 10},
 Ticks → {Range[0, 10]}, PlotLegends → "Expressions"]
```

```
Lagrange Polynomial = -0.987583 + 1.18991 x - 0.223608 x^2 + 0.0221231 x^3 - 0.000844369 x^4
```

Out[29]=