1. Use Lagrange interpolation formula to find the value of y when $x = 10$, if the following values of x and y are given:

x	5	7	11	13	17
y	150	392	1452	2366	5202

   Also, find the Lagrange Interpolating polynomial.

2. The upward velocity of rocket is given as function of time in table below

Time(t)	0	10	15	20	22.5	30
Velocity(v)	0	227.04	362.78	517.35	602.97	901.67

   Determine the value of the velocity at $t = 16$ seconds with third order polynomial interpolation using Newton's divided difference polynomial method.

3. From the following table, find y when $x = 1.85$ and 2.25 by Newton's interpolation formula.

x	1.7	1.8	1.9	2.0	2.1	2.2	2.3
$y = e^x$	5.474	6.050	6.686	7.389	8.166	9.025	9.974

4. Find the Newton's forward interpolating polynomial of degree 10 that interpolates the function $\tan^{-1}(x)$ at 11 equally spaced points in the interval $[0\ 6]$. Print the coefficients of the polynomial. Compute and print the difference between the polynomial and the function at 33 equally spaced points in the interval $[0\ 8]$. What conclusion can be drawn ?

$* * * * * * *$ End $* * * * * * *$