

H.W// The increase in temperature dT of a chemical reaction can be calculated using: Lec: 5

$$dT = 1 - \exp(-kt)$$

$$k = \exp(-q)$$

$$q = 2000 / (T + 273.16)$$

where T is the temp. in centigrade, and t is the time in seconds.

Write a program which prints the temperature of such a reaction at 1 minute intervals, The initial temperature is supplied by the user and the above equations should be re-calculated once every second. The program should terminate when the temperature reaches twice the initial temperature.

EX: a) Write F.P. to compute value of the following series .

b) The program calculates by adding terms of the series and stopping when the absolute value of the term that was added last is smaller than 0.0001. when $x=2$

$$e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots + \frac{x^n}{n!}$$

a)

```
program exp
integer:: i,f
real:: e=1
f=1
read*,x,n
do i=1,n
    f=f*i
    e=e+(x**i)/f
end do
print*, e
end program exp
```

