***School: H.A.N Homework (1)***

***Subject: Logarithmic functions (variation and graph of a function with ln)***

***Class: G12-GS Date:18-11-2020***

**I**- Consider a function f defined over by :



1) Calculate: ; . Deduce an asymptote of f.



2) Calculate f '(x) & set up the table of variations of f .

3) Trace the graph (C) of f .

**II-**Consider a function f defined over by :



1) Calculate: ; . Deduce the asymptotes of f.



2) Calculate f '(x) & set up the table of variations of f .

3) Trace the graph (C) of f .

**III-**Consider a function f defined over by :



1) Calculate: ; .



2) Calculate f '(x) & set up the table of variations of f .

3) Trace the graph (C) of f .

**IV-**Consider a function f defined over by :



1) Calculate: ; . Deduce the asymptotes of f.



2) Calculate f '(x) & set up the table of variations of f .

3) Trace the graph (C) of f

**V-** Consider a function f defined over by :



whose table of variation is given below:

| ***x*** | 0 | |
| --- | --- | --- |
| ***f'(x)*** |  | - 0 + |
| ***f(x)*** |  | -4 -3 |

Find a , b & c .

***School: H.A.N Homework (2)***

***Subject: Logarithmic functions (variation and graph of a function with ln)***

***Class: G12-GS Date:19-11-2020***

**I-**

Consider a function f defined over by:



& denote by (C) its representative curve in an orthonormal system (O ; ; ).



1) Calculate: . Deduce an equation of an asymptote to (C).



2) a)Verify that:



b) Calculate.Prove that the line (d) of equation y = x-1 is an asymptote to(C).



c) Prove that (C) is above (d) for every x>0.

3) Show that & set up the table of variations of f.



4) Trace (C).

**II-**

***Part-A-:***

Consider the function g defined over by:



whose table of variation is given below:

1. Calculate g’(x) and set up the table of variations of g.
2. Show that the equation g(x) = 0 admits a unique solution]1.6;1.7[.



1. Deduce the sign of g(x).

***Part-B-:*** (take)



Consider the function f defined over by:



Denote by (C) the representative curve of f in an orthonormal system.

1) Calculate:;.Deduce an asymptote.



2) a- Prove that the line (D) of equation y = -x+2 is an asymptote to (C) at .

b- Study the position between (C) & (D).

3) Prove that & set up the table of variations of f.



4) Write an equation of the tangent (T) to (C) at x =1.

5) Prove that the equation f(x) = 0 admits a unique solution



6) Trace (T), (D) & (C).

***School: H.A.N Homework (3)***

***Subject: Logarithmic functions (variation and graph of a function with ln)***

***Class: G12-GS Date:30-11-2020***

**I-A-**

Consider the function g defined overby: .



1) Calculate: ; .



2) a-Set up the table of variations of g.

b-Deduce that for every x in :.



3) Solve the equation:.(Give the solutions in exact form)



**B-**

Consider a function f defined over by: Designate by (C )



its representative curve in an orthonormal system .

1. Calculate: , .Deduce the equation of an asymptote.



1. a- Prove that the line (D) of equation is an asymptote to (C).



b- Study the position between (C) and (D).

1. a-Prove that .



b- Set up the table of variations of f.

1. Determine the abscissa of points on (C) where the tangent at these points parallel to (D).
2. Prove that the equation admits a unique solution .Verify that .



1. Trace (D) & (C).

**II-**

**Part-A-:**

Consider the function g defined overby: .



1) Calculate: ; .



2) a-Set up the table of variations of g.

b-Calculate g(1).Deduce the sign of according to the values of x.



**Part-B-:**

Consider a function f defined over by: Designate by (C ) its representative curve in an orthonormal system .



1. Calculate: , .Deduce an asymptote.



1. a-Prove that the line (d) of equation *y=2x-e* is an asymptote to (C) at



b- Study the position between (C) and (d).

1. Prove that & set up the table of variations of f.



1. Trace (d) & (C).