**Fonctions Tutorials**

**Exercise 1 :**

Evaluate the following limits

**Exercise 2 :**

1. Let a function defined by
2. Verify that f is bijective on it’s interval
3. What can we conclude about
4. Let a function defined by
5. Show that f realises a bijection from to .
6. Determine

**Exercise 3 :**

1. Let the function defined by

1. Show that the function is well defined on
2. Verify whether f is injective
3. Verifiy whether f is surjective
4. Can we conclude that the function is bijective ?
5. Let the function defined by

→xy

Verify whether f is injective, surjective and conclude whether it is bijective. Do the same for

**Exercise 4 :**

Let and two functions

1. Suppose that gf is injective. Show that f is injective
2. Suppose that gf is surjective, show that g is surjective.
3. Suppose that gf and g are bijective. Show that f is bijective.

**Exercise 5 :**

Let a,b, we note the function defined by

:

x→ax+b

1. For which values of a and b the function is injective. For which values is it surjective ?
2. If is bijective, determine it’s inverse

**Exercise 6 :**

1. Let the function
2. Determine the domain of definition of f
3. Determine
4. Draw the table of variation of the function
5. Sketch the graph of f
6. Let the function f defined by
7. Determine its domain
8. Calculate the limits at its bounds
9. Calculate
10. Study the variation of f and sketch its curve
11. Determine the equation of the tangent at the point of absciss 3

**Exercise 7 :**

Let the function f defined on by

1. Study the limit of f at 2. What’s it’s interpretation
2. Study it’s limit at -
3. Show that for every x2, we have
4. Study the limit at - of . What is it’s meaning
5. Show that
6. Study the sign of on
7. Deduce the variation of f on
8. Draw the variation table on
9. Determine the equation of the tangent of the curve of f at the point x=0
10. Sketch the graph
11. Determine graphically the solution of