



The first part of the paper is devoted to a general  
 discussion of the problem. It is shown that the  
 problem is equivalent to the problem of finding  
 the minimum of a certain function. This function  
 is defined as follows:

$$F(x) = \int_0^x f(t) dt + \int_x^1 g(t) dt$$

where  $f(t)$  and  $g(t)$  are continuous functions  
 defined on the interval  $[0, 1]$ .

It is shown that the minimum of  $F(x)$  is  
 attained at a point  $x_0$  which satisfies the  
 equation

$$f(x_0) = g(x_0)$$

provided that  $f(x) > g(x)$  for  $x < x_0$   
 and  $f(x) < g(x)$  for  $x > x_0$ .

In the case where  $f(x) = g(x)$  for all  $x$   
 in the interval  $[0, 1]$ , the minimum of  $F(x)$   
 is attained at every point in the interval.

The second part of the paper is devoted to a  
 detailed study of the case where  $f(x) = g(x)$   
 for all  $x$  in the interval  $[0, 1]$ .

It is shown that in this case the minimum of  
 $F(x)$  is attained at every point in the interval  
 and is equal to

$$\int_0^1 f(t) dt$$

where  $f(t)$  is any continuous function defined  
 on the interval  $[0, 1]$  which satisfies the  
 condition

$$\int_0^1 f(t) dt = \int_0^1 g(t) dt$$

The third part of the paper is devoted to a  
 study of the case where  $f(x) > g(x)$  for  
 all  $x$  in the interval  $[0, 1]$ .

It is shown that in this case the minimum of  
 $F(x)$  is attained at  $x = 0$  and is equal to

$$\int_0^1 g(t) dt$$