This work is devoted to studying of problem of (non)existence an elementary primitive function of a given function. In the first place, we introduce the structure of a differential field and then we find a suitable way of formalizing the concept of the elementary function. This tools opens up the possibility to formulate and prove the crucial theorem which says what form an elemental primitive function must necessarily have if it exists. Then we use it to find the conditions for the existence of an elementary integrals of two functions in a special but still quite general form. By using these conditions, we will show the nonelementarity of a number of more or less known integrals.