

$$110. \quad \int \frac{(a+x) dx}{(c+x)} = x + (a-c) \ln |c+x|.$$

$$110.1. \quad \int \frac{(a+fx) dx}{(c+gx)} = \frac{fx}{g} + \frac{ag-cf}{g^2} \ln |c+gx|.$$

$$111. \quad \int \frac{dx}{(a+x)(c+x)} = \frac{1}{a-c} \ln \left| \frac{c+x}{a+x} \right| \quad [a \neq c].$$

Если $a=c$, см. 90.2.

$$111.1. \quad \int \frac{dx}{(a+fx)(c+gx)} = \frac{1}{ag-cf} \ln \left| \frac{c+gx}{a+fx} \right| \quad [ag \neq cf].$$

Если $ag=cf$, см. 90.2.

$$111.2. \quad \int \frac{x dx}{(a+x)(c+x)} = \frac{1}{(a-c)} \{a \ln |a+x| - c \ln |c+x|\}.$$

$$112. \quad \int \frac{dx}{(a+x)(c+x)^2} = \frac{1}{(c-a)(c+x)} + \frac{1}{(c-a)^2} \ln \left| \frac{a+x}{c+x} \right|.$$

$$112.1. \quad \int \frac{x dx}{(a+x)(c+x)^2} = \frac{c}{(a-c)(c+x)} - \frac{a}{(a-c)^2} \ln \left| \frac{a+x}{c+x} \right|.$$

$$112.2. \quad \int \frac{x^2 dx}{(a+x)(c+x)^2} = \frac{c^2}{(c-a)(c+x)} + \frac{a^2}{(c-a)^2} \ln |a+x| + \frac{c^2-2ac}{(c-a)^2} \ln |c+x|.$$

$$113. \quad \int \frac{dx}{(a+x)^2(c+x)^2} = \frac{-1}{(a-c)^2} \left(\frac{1}{a+x} + \frac{1}{c+x} \right) + \frac{2}{(a-c)^3} \ln \left| \frac{a+x}{c+x} \right|.$$

$$113.1. \quad \int \frac{x dx}{(a+x)^2(c+x)^2} = \frac{1}{(a-c)^2} \left(\frac{a}{a+x} + \frac{c}{c+x} \right) + \frac{a+c}{(a-c)^3} \ln \left| \frac{a+x}{c+x} \right|.$$

$$113.2. \quad \int \frac{x^2 dx}{(a+x)^2(c+x)^2} = \frac{-1}{(a-c)^3} \left(\frac{a^2}{a+x} + \frac{c^2}{c+x} \right) + \frac{2ac}{(a-c)^3} \ln \left| \frac{a+x}{c+x} \right|.$$