

$$25. \quad \int_0^1 \ln(1+x) \frac{1-x^2}{(ax+b)^2} \frac{dx}{(bx+a)^2} = \frac{1}{a^2-b^2} \left\{ \frac{1}{a-b} \left[\frac{a+b}{ab} \ln(a+b) - \frac{1}{a} \ln b - \frac{1}{b} \ln a \right] + \right. \\ \left. + \frac{4 \ln 2}{b^2-a^2} \right\} \quad [a > 0, \quad b > 0, \quad a^2 \neq b^2] \quad \text{Лн (114)(13)}$$

$$26. \quad \int_0^\infty \ln(1+x) \frac{1-x^2}{(ax+b)^2} \cdot \frac{dx}{(bx+a)^2} = \frac{1}{ab(a^2-b^2)} \ln \frac{b}{a} \\ [a > 0, \quad b > 0] \quad \text{Лн (139)(14)}$$

$$27. \quad \int_0^1 \ln(1+ax) \frac{1-x^2}{(1+x^2)^2} dx = \frac{1}{2} \frac{(1+a)^2}{1+a^2} \ln(1+a) - \frac{1}{2} \cdot \frac{a}{1+a^2} \ln 2 - \frac{\pi}{4} \cdot \frac{a^2}{1+a^2} \\ [a > -1] \quad \text{Бн (114)(23)}$$

$$28. \quad \int_0^\infty \ln(a+x) \frac{b^2-x^2}{(b^2+x^2)^2} dx = \frac{1}{a^2+b^2} \left(a \ln \frac{b}{a} - \frac{b\pi}{2} \right) \\ [a > 0, \quad b > 0] \quad \text{Бн (139)(11)}$$

$$29. \quad \int_0^\infty \ln^2(a-x) \frac{b^2-x^2}{(b^2+x^2)^2} dx = \frac{1}{a^2+b^2} \left(a \ln \frac{a}{b} - \frac{b\pi}{2} \right) \\ [a > 0, \quad b > 0] \quad \text{Бн (139)(12)}$$

$$30. \quad \int_0^\infty \ln^2(a-x) \frac{x dx}{(b^2+x^2)^2} = \frac{1}{a^2+b^2} \left(\ln b - \frac{a\pi}{2b} + \frac{a^2}{b^2} \ln a \right) \\ [a > 0, \quad b > 0] \quad \text{Бн (139)(10)}$$

6.542

$$1. \quad \int_0^1 \frac{\ln(1 \pm x)}{\sqrt{1-x^2}} dx = -\frac{\pi}{2} \ln 2 \pm 2G \quad \text{ГХ2(325)(20)}$$

$$2. \quad \int_0^1 \frac{x \ln(1 \pm x)}{\sqrt{1-x^2}} dx = -1 \pm \frac{\pi}{2} \quad \text{ГХ2(325)(22c)}$$

$$3. \quad \int_{-a}^a \frac{\ln(1+bx)}{\sqrt{a^2-x^2}} dx = \pi \ln \frac{1+\sqrt{1-a^2b^2}}{2} \quad \left[0 \leq |b| \leq \frac{1}{a} \right] \\ \text{Бн (145)(16, 17)и, ГХ2 (325)(21e)}$$

$$4. \quad \int_0^1 \frac{x \ln(1+ax)}{\sqrt{1-x^2}} dx = -1 + \frac{\pi}{2} \cdot \frac{1-\sqrt{1-a^2}}{a} + \frac{\sqrt{1-a^2}}{a} \arcsin a \quad [|a| \leq 1] \\ = -1 + \frac{\pi}{2a} + \frac{\sqrt{a^2-1}}{a} \ln(a + \sqrt{a^2-1}) \quad [a \geq 1] \\ \text{ГХ2(325)(22)}$$

$$5. \quad \int_0^1 \frac{\ln(1+ax)}{x\sqrt{1-x^2}} dx = \frac{1}{2} \arcsin a (\pi - \arcsin a) = \frac{\pi^2}{8} - \frac{1}{2} (\arccos a)^2 \\ [|a| \leq 1] \quad \text{Бн (120)(4), ГХ2 (325)(21a)}$$