

**PROOF OF FORMULA 2.313.1**

$$\int \frac{dx}{a + be^{mx}} = \frac{1}{am} [mx - \ln(a + be^{mx})]$$

Let  $t = a + be^{mx}$  to obtain

$$\int \frac{dx}{a + be^{mx}} = \frac{1}{m} \int \frac{dt}{t(t-a)}.$$

The partial fraction decomposition

$$\frac{1}{t(t-a)} = \frac{1}{a} \left( \frac{1}{t-a} - \frac{1}{t} \right),$$

gives the result.