

$$x^2 + y^2 = \frac{\operatorname{sn}^2(1 + \operatorname{cn}^2)}{(1 + \operatorname{cn}^2)^2} = \frac{\operatorname{sn}^2}{1 + \operatorname{cn}^2}, \quad x^2 - y^2 = \frac{\operatorname{sn}^2(1 - \operatorname{cn}^2)}{(1 + \operatorname{cn}^2)^2} = \frac{\operatorname{sn}^4}{(1 + \operatorname{cn}^2)^2}$$