And $u_1 u_4 = a\sqrt{z} = \frac{5\sqrt{5}}{2}$. Therefore

$$\begin{aligned} x = &\left[-\frac{625}{4}\left(1+\frac{\sqrt{5}}{2}\right)+\sqrt{\left\{\left(\frac{625}{4}\right)^2\left(1+\frac{\sqrt{5}}{2}\right)^2-\left(\frac{5\sqrt{5}}{2}\right)^5\right\}}\right]^{\frac{1}{5}} \\ &+\left[-\frac{625}{4}\left(1+\frac{\sqrt{5}}{2}\right)-\sqrt{\left\{\left(\frac{625}{4}\right)^2\left(1+\frac{\sqrt{5}}{2}\right)^2-\left(\frac{5\sqrt{5}}{2}\right)^5\right\}}\right]^{\frac{1}{5}} \\ &+\left[-\frac{625}{4}\left(1-\frac{\sqrt{5}}{2}\right)+\sqrt{\left\{\left(\frac{625}{4}\right)^2\left(1-\frac{\sqrt{5}}{2}\right)^2+\left(\frac{5\sqrt{5}}{2}\right)^5\right\}}\right]^{\frac{1}{5}} \\ &+\left[-\frac{625}{4}\left(1-\frac{\sqrt{5}}{2}\right)-\sqrt{\left\{\left(\frac{625}{4}\right)^2\left(1-\frac{\sqrt{5}}{2}\right)^2+\left(\frac{5\sqrt{5}}{2}\right)^5\right\}}\right]^{\frac{1}{5}}. \end{aligned}$$

Second special case: When $u_1 u_4 = u_2 u_3$.

§27. In the case in which $u_1 u_4 = u_2 u_3$, $a = 0$. Consequently, if c is distinct from zero, t or $\frac{c}{a}$ is infinite; while, if c is zero, t assumes the form $\frac{0}{0}$. As we cannot here proceed by finding t, the general method has to be modified.

§28. Because $a = 0$, $y = a^2 z = 0$, and $ty = \left(\frac{c}{a}\right)(a^2 z) = 0$. Also $t^2 y = c^2 z$. Equation (5) becomes

$$gA = k^2 - c^2 z.$$

Therefore, from the first of equations (6),

$$k^2 - c^2 z = \frac{g}{20}(5g^2 - p_4), \tag{45}$$

and, from the second of equations (6),

$$p_5 = -4B. \tag{46}$$

From (33) and (35),

$$\begin{aligned} P &= 2k(k^2 - c^2 z) - (g^3 - a^2 z)(gk - acz) \\ &= 2k(k^2 - c^2 z) - g^3 k, \end{aligned}$$

and

$$aQ = 2at(k^2 - c^2 z) - (g^3 - a^2 z)(ak - gc) = g^3 c.$$

Therefore, from the first of equations (34), taken in connection with (46),

$$\frac{1}{4} g^2 p_5 + k\{2(k^2 - c^2 z) - g^3\} + 2czA' = 0. \tag{47}$$

But, A' having been put for $he(\theta^2 - \phi^2 z)$, we have, from the value of $z\{he(\theta^2 - \phi^2 z)\}$, obtained in §20,

$$z(A')^2 = (k^2 - c^2 z)^2 + g^6 - 2g^3(k^2 + c^2 z). \tag{48}$$