Therefore, from the second of equations (6), $B = -11 \times 7500$. Finding $A'\sqrt{z}$ as in preceding examples of the same type, we have, from the second of equations (34), $B'\sqrt{z} = -11 \times 2700\sqrt{5}$. Therefore

$$B + B'\sqrt{z} = -3300\,(25 + 9\sqrt{5}).$$

And $u_1 u_4 = -11\,(5 + \sqrt{5})$. Therefore

$$\begin{aligned} x = {} & [-3300\,(25 + 9\sqrt{5}) + \sqrt{\{3300^2(25 + 9\sqrt{5})^2 + 11^5(5 + \sqrt{5})^5\}}]^{\frac{1}{5}} \\ & + [-3300\,(25 + 9\sqrt{5}) - \sqrt{\{3300^2(25 + 9\sqrt{5})^2 + 11^5(5 + \sqrt{5})^5\}}]^{\frac{1}{5}} \\ & + [-3300\,(25 - 9\sqrt{5}) + \sqrt{\{3300^2(25 - 9\sqrt{5})^2 + 11^5(5 - \sqrt{5})^5\}}]^{\frac{1}{5}} \\ & + [-3300\,(25 - 9\sqrt{5}) - \sqrt{\{3300^2(25 - 9\sqrt{5})^2 + 11^5(5 - \sqrt{5})^5\}}]^{\frac{1}{5}}. \end{aligned}$$

§44. *Eighteenth Example.*—Let

$$x^5 - 20x^3 + 320x^2 + 540x + 638 = 0.$$

Here $g = 2$, $k = -16$, and the commensurable values of y and t that satisfy (37) and (38) are

$$y = 8, \quad t = -5.$$

Therefore, from the second of equations (6), and the second of equations (34),

$$B = -12 \times 166, \quad B'\sqrt{z} = -12 \times 117\sqrt{2},$$
$$\therefore\ B + B'\sqrt{z} = -12\,(166 + 117\sqrt{2}).$$

And $u_1 u_4 = 2\,(1 + \sqrt{2})$. Therefore

$$\begin{aligned} x = {} & [-12\,(166 + 117\sqrt{2}) + \sqrt{\{144\,(166 + 117\sqrt{2})^2 - 32\,(1 + \sqrt{2})^5\}}]^{\frac{1}{5}} \\ & + [-12\,(166 + 117\sqrt{2}) - \sqrt{\{144\,(166 + 117\sqrt{2})^2 - 32\,(1 + \sqrt{2})^5\}}]^{\frac{1}{5}} \\ & + [-12\,(166 - 117\sqrt{2}) + \sqrt{\{144\,(166 - 117\sqrt{2})^2 - 32\,(1 - \sqrt{2})^5\}}]^{\frac{1}{5}} \\ & + [-12\,(166 - 117\sqrt{2}) - \sqrt{\{144\,(166 - 117\sqrt{2})^2 - 32\,(1 - \sqrt{2})^5\}}]^{\frac{1}{5}}. \end{aligned}$$

§45. *Nineteenth Example.*—Let

$$x^5 - 20x^3 - 160x^2 - 420x - 8928 = 0.$$

Here $g = 2$, $k = 8$, and the commensurable values of y and t which satisfy (37) and (38) are

$$y = 72, \quad t = -\frac{7}{3}.$$

Therefore, from the second of equations (6), $B = 552$. Finding $A'\sqrt{z}$ as in preceding examples of the same type, we have, from the second of equations (34), $B'\sqrt{z} = -284\sqrt{2}$. Therefore

$$B + B'\sqrt{z} = 4\,(138 - 71\sqrt{2}).$$