§39. *Thirteenth Example.*—Let

$$x^5 + 110(5x^3 + 60x^2 + 800x + 8320) = 0.$$

Here $g = -55$, $k = -330$, and the commensurable values of y and t which satisfy (37) and (38) are

$$y = 5 \times 11^2, \quad t = 10.$$

Therefore, from the second of equations (6), $B = -220 \times 765$. Finding $A'\sqrt{z}$ as in the second example, we have, from the second of equations (34), $B'\sqrt{z} = -220 \times 337\sqrt{5}$. Therefore

$$B + B'\sqrt{z} = -220(765 + 337\sqrt{5}).$$

And $u_1u_4 = -11(5 + \sqrt{5})$. Therefore

$$\begin{aligned} x = &\left[-220(765 + 337\sqrt{5}) + \sqrt{\{220^2(765 + 337\sqrt{5})^2 - (-55 - 11\sqrt{5})^5\}}\right]^{\frac{1}{5}} \\ &+ \left[-220(765 + 337\sqrt{5}) - \sqrt{\{220^2(765 + 337\sqrt{5})^2 - (-55 - 11\sqrt{5})^5\}}\right]^{\frac{1}{5}} \\ &+ \left[-220(765 - 337\sqrt{5}) + \sqrt{\{220^2(765 - 337\sqrt{5})^2 - (-55 + 11\sqrt{5})^5\}}\right]^{\frac{1}{5}} \\ &+ \left[-220(765 - 337\sqrt{5}) - \sqrt{\{220^2(765 - 337\sqrt{5})^2 - (-55 + 11\sqrt{5})^5\}}\right]^{\frac{1}{5}}. \end{aligned}$$

§40. *Fourteenth Example.*—Let

$$x^5 - 20x^3 - 80x^2 - 150x - 656 = 0.$$

Here $g = 2$, $k = 4$, and the commensurable values of y and t which satisfy (37) and (38) are

$$y = 2, \quad t = 2.$$

Therefore, from the second of equations (6), $B = 204$. Finding $A'\sqrt{z}$ as in the immediately preceding example, we have, from the second of equations (34), $B'\sqrt{z} = 144\sqrt{2}$. Therefore

$$B = 12 \times 17, \text{ and } B'\sqrt{z} = 144\sqrt{2},$$
$$\therefore\ B + B'\sqrt{z} = 12(17 + 12\sqrt{2}).$$

And $u_1u_4 = 2 + \sqrt{2}$. Therefore

$$\begin{aligned} x_1 &= u_1 + u_4 + u_2 + u_3 \\ &= \left[12(17 + 12\sqrt{2}) + \sqrt{\{144(17 + 12\sqrt{2})^2 - (2 + \sqrt{2})^5\}}\right]^{\frac{1}{5}} \\ &+ \left[12(17 + 12\sqrt{2}) - \sqrt{\{144(17 + 12\sqrt{2})^2 - (2 + \sqrt{2})^5\}}\right]^{\frac{1}{5}} \\ &+ \left[12(17 - 12\sqrt{2}) + \sqrt{\{144(17 - 12\sqrt{2})^2 - (2 - \sqrt{2})^5\}}\right]^{\frac{1}{5}} \\ &+ \left[12(17 - 12\sqrt{2}) - \sqrt{\{144(17 - 12\sqrt{2})^2 - (2 - \sqrt{2})^5\}}\right]^{\frac{1}{5}}. \end{aligned}$$

§41. *Fifteenth Example.*—Let

$$x^5 - 40x^3 + 160x^2 + 1000x - 5888 = 0.$$