Here $g = 4$, $k = -8$, and the commensurable values of y and t which satisfy (37) and (38) are

$$y = 8, \; t = -4.$$

Therefore, from the second of equations (6), $B = 1152$. Finding $A'\sqrt{z}$ as in the two preceding examples, we have, from the second of equations (34), $B'\sqrt{z} = 816\sqrt{2}$. Therefore

$$B + B'\sqrt{z} = 48\,(24 + 17\sqrt{2}).$$

And $u_1 u_4 = 4 + 2\sqrt{2}$. Therefore

$$\begin{aligned} x = {} & [48\,(24 + 17\sqrt{2}) + \sqrt{\{48^2 (24 + 17\sqrt{2})^2 - (4 + 2\sqrt{2})^5\}}]^{\frac{1}{5}} \\ & + [48\,(24 + 17\sqrt{2}) - \sqrt{\{48^2 (24 + 17\sqrt{2})^2 - (4 + 2\sqrt{2})^5\}}]^{\frac{1}{5}} \\ & + [48\,(24 - 17\sqrt{2}) + \sqrt{\{48^2 (24 - 17\sqrt{2})^2 - (4 - 2\sqrt{2})^5\}}]^{\frac{1}{5}} \\ & + [48\,(24 - 17\sqrt{2}) - \sqrt{\{48^2 (24 - 17\sqrt{2})^2 - (4 - 2\sqrt{2})^5\}}]^{\frac{1}{5}}. \end{aligned}$$

§42. *Sixteenth Example.*—Let

$$\left(\frac{x}{2}\right)^5 - 50\left(\frac{x}{2}\right)^3 - 600\left(\frac{x}{2}\right)^2 - 2000\left(\frac{x}{2}\right) - 11200 = 0,$$

or

$$x^5 - 200x^3 - 4800x^2 - 32000x - 3200 \times 112 = 0.$$

Here $g = 20$, $k = 240$, and the commensurable values of y and t which satisfy (37) and (38) are

$$y = 80, \; t = 20.$$

Therefore, from the second of equations (6), $B = 640 \times 165$. Finding $A'\sqrt{z}$ as in the preceding examples of the same type, we have, from the second of equations (34), $B'\sqrt{z} = 640 \times 73\sqrt{5}$. Therefore

$$B + B'\sqrt{z} = 640\,(165 + 73\sqrt{5}).$$

And $u_1 u_4 = 4\,(5 + \sqrt{5})$. Therefore

$$\begin{aligned} x = {} & [640\,(165 + 73\sqrt{5}) + \sqrt{\{640^2 (165 + 73\sqrt{5})^2 - (20 + 4\sqrt{5})^5\}}]^{\frac{1}{5}} \\ & + [640\,(165 + 73\sqrt{5}) - \sqrt{\{640^2 (165 + 73\sqrt{5})^2 - (20 + 4\sqrt{5})^5\}}]^{\frac{1}{5}} \\ & + [640\,(165 - 73\sqrt{5}) + \sqrt{\{640^2 (165 - 73\sqrt{5})^2 - (20 - 4\sqrt{5})^5\}}]^{\frac{1}{5}} \\ & + [640\,(165 - 73\sqrt{5}) - \sqrt{\{640^2 (165 - 73\sqrt{5})^2 - (20 - 4\sqrt{5})^5\}}]^{\frac{1}{5}}. \end{aligned}$$

§43. *Seventeenth Example.*—Let

$$x^5 + 110\,(5x^3 + 20x^2 - 360x + 800) = 0.$$

Here $g = -55$, $k = -110$, and the commensurable values of y and t which satisfy (37) and (38) are

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