By (5) and (6)

$$A(g^2-y)=g(k^2-t^2y)+azA',$$

and

$$p_4=-20A+5g^2+15y.$$

Therefore

$$azA'=\frac{g^2-y}{20}(5g^2+15y-p_4)-g(k^2-t^2y). \qquad (35)$$

§19. From the second of equations (6),

$$p_5(g^2-y)^2+4B(g^2-y)^2-40ty(g^2-y)^2=0.$$

Therefore, from the first of the two equations (34),

$$(p_5-40ty)(g^2-y)^2+4(g^2+y)P+8gyQ+8azA'\{t(g^2+y)+2gk\}=0.$$

Putting for azA' its value in (35),

$$(g^2-y)\Big[(p_5-40ty)(g^2-y)+2\Big(g^2+3y-\frac{1}{5}p_4\Big)\{t(g^2+y)+2gk\}\Big]$$
$$+\big[4(g^2+y)P+8gazQ-8g(k^2-t^2y)\{t(g^2+y)+2gk\}\big]=0. \qquad (36)$$

But, from the values of P and Q,

$$4(g^2+y)P+8gazQ-8g(k^2-t^2y)\{t(g^2+y)+2gk\}$$
$$=\{-4(g^2+y)(gk-ty)+8gy(k-gt)-8(k+gt)(k^2-t^2y)\}(g^2-y).$$

Therefore, rejecting the common factor g^2-y, (36) becomes

$$(p_5-40ty)(g^2-y)+2\Big(g^2+3y-\frac{1}{5}p_4\Big)\{t(y^2+y)+2gk\}$$
$$-4(g^2+y)(gk-ty)+8gy(k-yt)-8(k+gt)(k^2-t^2y)=0.$$

Arranging according to the powers of y,

$$\left.\begin{aligned}50y^2t+y\Big\{8gt^3+8kt^2-t\Big(20g^2+\frac{2}{5}p_4\Big)-p_5\Big\}&\\ +t\Big\{2g^2\Big(g^2+\frac{p_4}{5}\Big)-8gk^2\Big\}+g^2p_5-8k^3-\frac{4}{5}gkp_4=0.&\end{aligned}\right\} \qquad (37)$$

This is one equation between the unknown quantities y and t.

§20. From the last two of the equations (6),

$$he^2(\theta^2+\phi^2z)=(k^2+t^2y)-2kat+(g^2-y)(a-g)$$

and

$$2hze^2(\theta\phi)=2kzat-(k^2+y^2t)-(g^2-y)(az-g).$$

But

$$(\theta^2-\phi^2z)^2=(\theta^2+\phi^2z)^2-4z\theta^2\phi^2.$$

Therefore

$$zh^2e^4(\theta^2-\phi^2z)^2=z\{(k^2+t^2y)-2kat+(g^2-y)(a-g)^2\}$$
$$-\{2kzat-(k^2+t^2y)-(g^2-y)(az-g)^2\}.$$