

The discriminant of R reads

$$\Delta_R = 8192(8 + 2p - q)^2(1 - z)^2 z^2 \Delta_R^{(1)}(z, p, q)$$

where $\Delta_R^{(1)}(z, p, q)$ is

$$\begin{aligned} \Delta_R^{(1)}(z, p, q) = & \textcolor{red}{z}^8 [8p^4(q-2)^2 - 8p^3(3q^3 - 22q^2 + 52q - 40) + p^2(26q^4 - 200q^3 + 560q^2 - 672q + 288) \\ & - p(12q^5 - 20q^4 - 760q^3 + 4176q^2 - 7904q + 5120) + 2q^6 + 36q^5 - 886q^4 + 5928q^3 - 17592q^2 + 24320q - 12800] \\ & + \textcolor{red}{z}^7 [-8p^5(q^2 - 6q + 8) + 4p^4(7q^3 - 58q^2 + 176q - 176) - p^3(38q^4 - 284q^3 + 808q^2 - 1200q + 832) \\ & + p^2(25q^5 - 46q^4 - 1284q^3 + 8216q^2 - 18272q + 13888) - p(8q^6 + 86q^5 - 1862q^4 + 12060q^3 - 41680q^2 + 73600q - 50432) \\ & + q^7 + 32q^6 - 455q^5 + 2078q^4 - 6696q^3 + 24112q^2 - 52352q + 40960] \\ & + \textcolor{red}{z}^6 [-16p^6(q-2) + 4p^5(10q^2 - 64q + 96) + 8p^4(q^3 - 10q^2 + 22q + 16) \\ & - p^3(102q^4 - 1120q^3 + 6328q^2 - 16448q + 14592) + p^2(109q^5 - 1002q^4 + 5952q^3 - 27240q^2 + 68416q - 63520) \\ & - p(46q^6 - 154q^5 - 1030q^4 + 5536q^3 + 368q^2 - 51616q) \\ & - 76800p + 7q^7 + 42q^6 - 995q^5 + 5274q^4 - 20472q^3 + 56824q^2 - 61696q + 4608] \\ & + \textcolor{red}{z}^5 [-16p^6q + p^5(112q^2 - 576q + 512) - p^4(156q^3 - 1664q^2 + 6416q - 7424) \\ & - p^3(22q^4 + 284q^3 - 3584q^2 + 20064q - 31104) + p^2(169q^5 - 1582q^4 + 10276q^3 - 37216q^2 + 40768q + 16256) \\ & - p(108q^6 - 1006q^5 + 6946q^4 - 39980q^3 + 144080q^2 - 245696q + 123136) \\ & + 21q^7 - 200q^6 + 1597q^5 - 11658q^4 + 40024q^3 - 98432q^2 + 191616q - 138240] \\ & + \textcolor{red}{z}^4 [16p^6(q-4) + 16p^5(3q^2 + 22q - 80) - p^4(224q^3 - 1576q^2 + 2000q + 3680) \\ & + p^3(170q^4 - 3128q^3 + 19552q^2 - 51040q + 32064) + p^2(85q^5 + 730q^4 - 10632q^3 + 68512q^2 - 210464q + 190176) \\ & - p(130q^6 - 1150q^5 + 4634q^4 - 7288q^3 - 29200q^2 + 220640q - 295424) \\ & + 35q^7 - 642q^6 + 5113q^5 - 22234q^4 + 42840q^3 - 68936q^2 + 39936q + 84480] \\ & + \textcolor{red}{z}^3 [16p^6q - p^5(40q^2 - 912q + 960) - p^4(76q^3 + 1288q^2 - 11664q + 16192) \\ & + p^3(190q^4 - 1724q^3 + 184q^2 + 41392q - 83008) - p^2(45q^5 - 2758q^4 + 17852q^3 - 61400q^2 + 38368q + 122304) \\ & - p(80q^6 - 22q^5 - 9842q^4 + 66180q^3 - 221104q^2 + 375040q - 107264) \\ & + 35q^7 - 736q^6 + 2779q^5 + 9658q^4 - 91832q^3 + 219760q^2 - 371584q + 235520] \\ & + \textcolor{red}{z}^2 [32p^6 - p^5(24q^2 + 160q - 1664) + p^4(24q^3 - 1312q^2 + 2688q + 8896) \\ & + p^3(62q^4 + 784q^3 - 15768q^2 + 60992q - 27008) - p^2(65q^5 - 1602q^4 - 5360q^3 + 75432q^2 - 305536q + 283616) \\ & - p(18q^6 + 554q^5 - 9170q^4 - 2448q^3 + 142352q^2 - 542048q + 626688) \\ & + 21q^7 - 370q^6 - 1241q^5 + 21694q^4 - 30440q^3 - 94712q^2 + 302848q - 401920] \\ & + \textcolor{red}{z} [-64p^5(5q-4) + 12p^4(q^3 - 12q^2 - 544q + 1024) - 2p^3(q^4 - 222q^3 + 200q^2 + 22720q - 55040) \\ & - p^2(21q^5 - 278q^4 - 6300q^3 + 3472q^2 + 135168q - 373760) \\ & + p(4q^6 - 174q^5 + 1386q^4 + 31092q^3 - 31152q^2 - 162624q + 514304) \\ & + 7q^7 - 56q^6 - 849q^5 + 2994q^4 + 54408q^3 - 70944q^2 - 66688q + 238592] \\ & + [-512p^5 - 64p^4(q^2 + 4q + 128) - 2p^3(q^4 + 16q^3 + 96q^2 + 1536q + 24064) \\ & - p^2(q^5 - 52q^4 - 32q^3 - 4672q^2 + 11776q + 124928) + 2p(q^6 + 15q^5 + 279q^4 + 1104q^3 + 15072q^2 - 7680q - 67840) \\ & + q^7 + 8q^6 + 159q^5 + 1272q^4 + 6240q^3 + 49920q^2 - 6400q - 51200] \end{aligned}$$