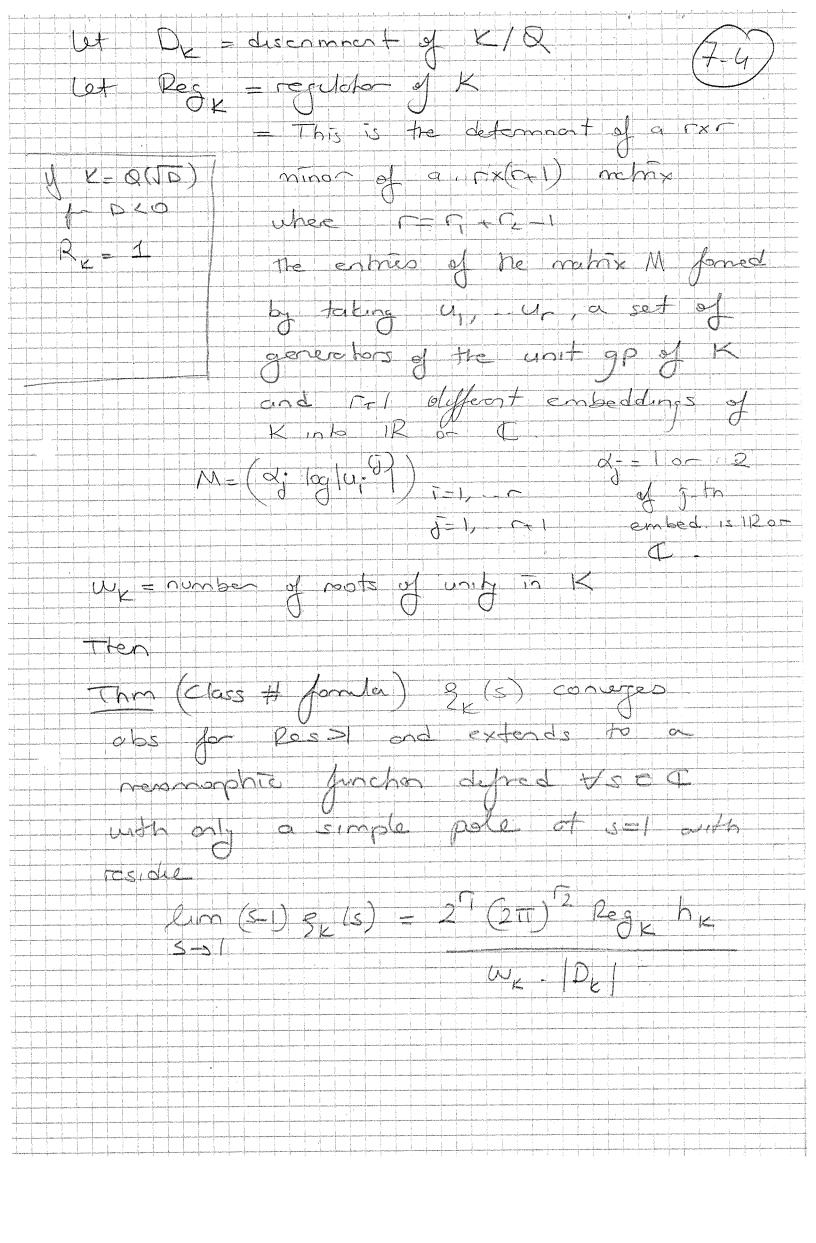


schefies a moderate gouth to mohuste their soudy we frs.f look of a very problem of representation of int By guodrahe forms and Dinchlet's class # formla Dirichlet's class number formite in its simplest form was confectived by Jacobi 1832 La proed by Onchlet in Nowadays it is given in tems of quadrate helds and then class number The famile of Dirichlet was generalised Dedoking to craiting number fields and it roletes continete dete associated to a finite extension K/Q to He reside at sel of the references associated

whee r = # of red embeddings of K 2r2 = # of complex 11 of K. (et g(s)) = 2 $O(0) \times (0)$ V(0) $N_{k/0}(01)$ is the norm of the ideal which is equal to $[O_{k}: 0]$ OK = ring of olg-integers contained in K = \(\frac{1}{2}\) \(\frac{1}{6}\) \(\frac{1}{1}\) \(\lambda\) \(\frac{1}{3}\) Let the = class number = # of exts in the

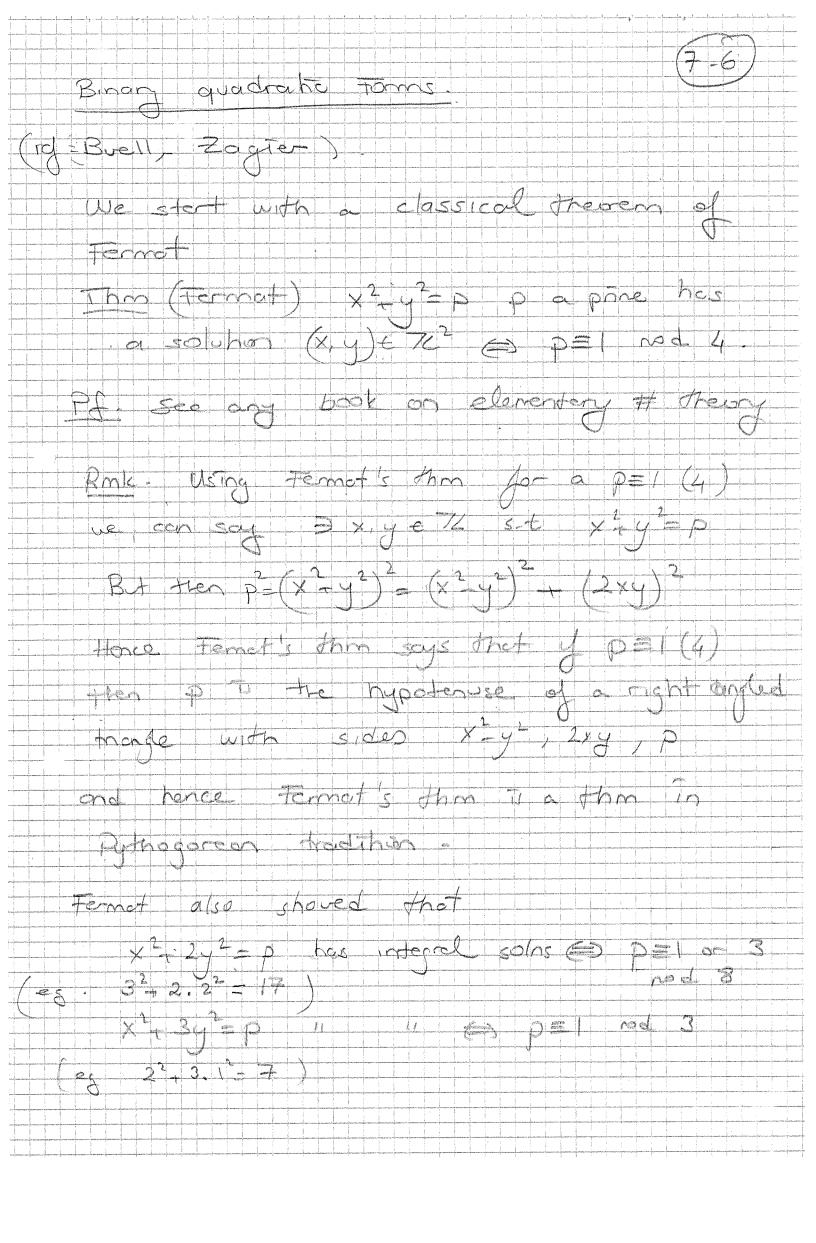
Ideal class group of K

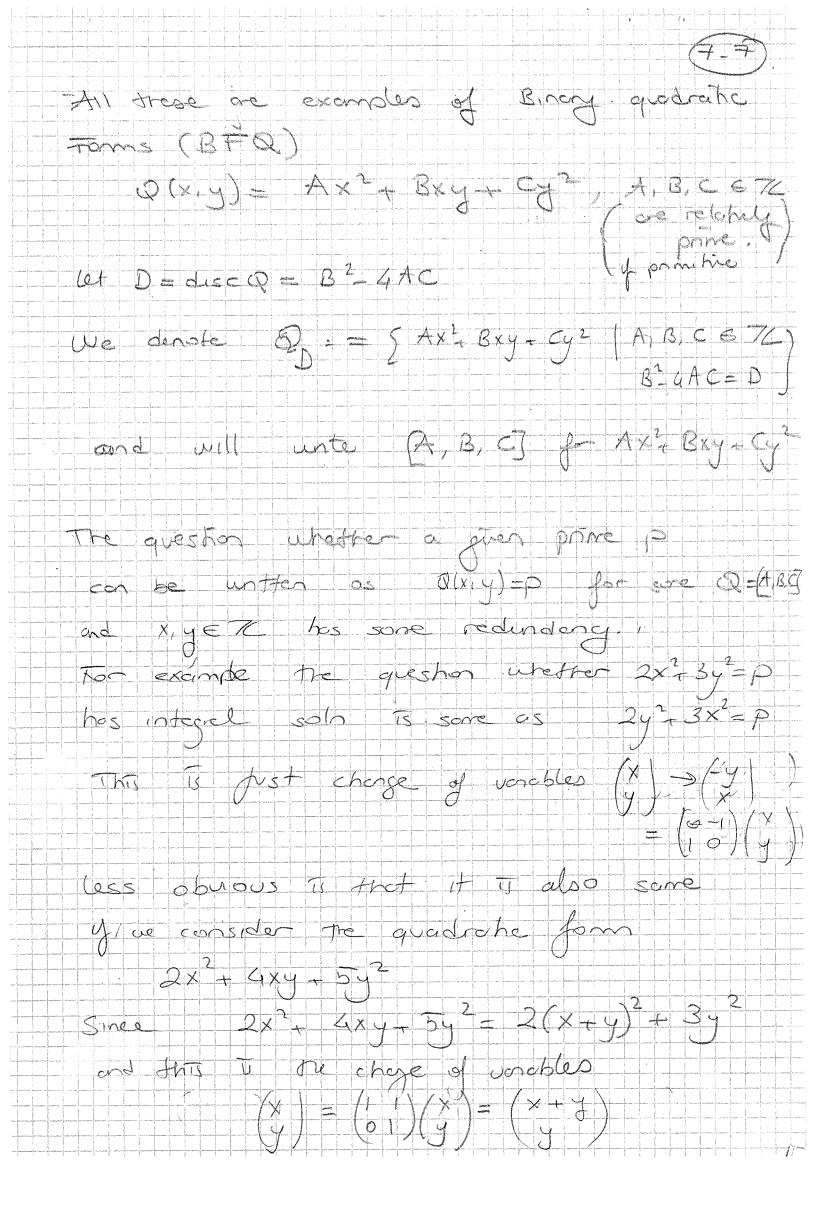
(Class group = Jr/Pr JE = group of prochosel double of OK Pe = gap of principal ideals [A fractional ideal of an integral domain Rill (unto K = its field of fractions) Ts on Roubmodule II if K such that (A frechoul doub I C R & His on interel) Appropriate frechoel ideal To a Residently K



We 11 take a more elementen approach and prove Dinichlet's class # form integral A Binery gradiatic forms of Negative Lisconmont - There is a correspondence ideals in a between gradische poms and gradische pell of disc D. the classical Jonnes of Dinchlet relates the closis # 91 position all BQFs

91 stace D to the value of sell of 4(s, x,) | Jot a | thankelet THE THEATTER ACES THE VALUE TACK PO phote son. Tister with the phrist stope 4(1x0) in tems of class H with a gire over Binery guadretic Toms





to avoid this kind of redundary acuss inmoduled on equivolence relations for guedrete forms + Defo we say 2 forms Q=CA, B, C] lend 0' = (A', B', C') ore equivalent and unter Dan Q 4 3 a metrix M=(x B) = SC(2/2) Q(x,4)=Q(xx+BX) xx+&1) Fine shouthof this defines on requiredence relation on the set of quarretic forms Defo we say a gradishe fem Q = [a, b, c] represents on myegon in if I (x,4) & 22 5-6-1-Q(x,y)=n-1, 74 0 15 in the con, ge 8-0-12-20-03-03-04-00-03-76-12-3-76 Note simple anthretic shows that @ 4x(Ax 1, 8x4 + eys) = (2Ax + By) + (A68), Hence y R= BI HACAO , then the FHS of @ is always pasitive - Hence son (A) = son (Ax Bxy+5) Hence a form on with regelve duc DKO only positive numbers or only irepresents. repetre numbers

clearly the range of values of CABCILLE THE regalle of rate of views el C-A, -8 - c]. I For now on for DCO we consider only the forms in that represent positive numbers - 54ch Jams de collad pasitive definite They have A>0 5 mes (AB, C) / Cc, -B, A) Ja $(x,y) \rightarrow (-4,x)$ 4 (A.B.C) to positive definite , so to (c)+B, A) Here 630 as well. Proc Frey gradate form Q(xy)=AxP-Bxy+cy= in Mahas form y 101/01/01/14 / 10/16/11/01/16/11/01/16/11/01/01/16/11/01/16/11/01/16/11/01/16/11/01/16/11/01/16/11/01/01/16/ Q'(x,y) = Q((x,y)M5) nen 19'(x,y) = (x y) M / A B/z / M-B/2 E (A) B1/2 = M (B)2 (B)2 (B)

