

THEOREM 1.158 PAGE 51 MUST BE REPLACED BY THE FOLLOWING STATEMENT.

Theorem 1.158.

(1) For $d \geq 1$ not divisible by a square, the ring of integers of $\mathbb{Q}[\sqrt{-d}]$ ($d > 0$) is a principal ideal domain if and only if $d \in \{1, 2, 3, 7, 11, 19, 43, 67, 163\}$.

(2) For $d \geq 1$ not divisible by a square, the ring of integers of $\mathbb{Q}[\sqrt{-d}]$ ($d > 0$) is a Euclidean ring if and only if $d \in \{1, 2, 3, 7, 11\}$,

and it is Euclidean for the map $N(a + b\sqrt{-d}) := a^2 + db^2$.

(3) For $m \in \mathbb{Z} \setminus \{0\}$, m not divisible by a square, the ring of integers of $\mathbb{Q}[\sqrt{m}]$ is Euclidean for the map $N(a + b\sqrt{m}) := |a^2 - mb^2|$ if and only if

$m \in \{-1, \pm 2, \pm 3, 5, 6, \pm 7, \pm 11, 13, 17, 19, 21, 29, 33, 37, 41, 57, 73\}$.

There are other quadratic real extensions of \mathbb{Q} whose ring of integers is Euclidean, but not for the function N defined above.