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On a comparison of the 4-ranks of the narrow ideal class groups of $\mathbb{Q}(\sqrt{m})$ and $\mathbb{Q}(\sqrt{-m})$.

(English) [Zbl 0921.11055](#)

[Kyushu J. Math.](#) 51, No. 2, 261-272 (1997).

For a square-free integer m , let $r_4^+(m)$ be the 4-rank of the narrow ideal class group of $\mathbb{Q}(\sqrt{m})$. It is well known that if $m > 0$, then

$$r_4^+(m) \leq r_4^+(-m) \leq r_4^+(m) + 1,$$

and there exist several proofs of this result. The author provides a further proof, based on an old idea of *L. Rédei* and *H. Reichardt* [*J. Reine Angew. Math.* 170, 69-74 (1933; [Zbl 0007.39602](#))] from 1933. He also gives criteria for equality in several special cases.

Reviewer: [F.Halter-Koch \(Graz\)](#)

MSC:

[11R29](#) Class numbers, class groups, discriminants

[11R11](#) Quadratic extensions

Keywords:

4-rank of the narrow ideal class group; quadratic fields

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