EXERCISES 8, QUESTION 9

9. Let K be an algebraic number field. Let I be an integral ideal of O_K. Let $a \in I$. Prove that there exists an integral ideal I' of O_K such that $<a> = II'$.

Solution. Let $a \in I$. Then $<a> \subseteq I$. Hence $I \mid <a>$. Thus there exists an integral ideal I' of O_K such that

$$<a> = II' \qquad \blacksquare$$

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