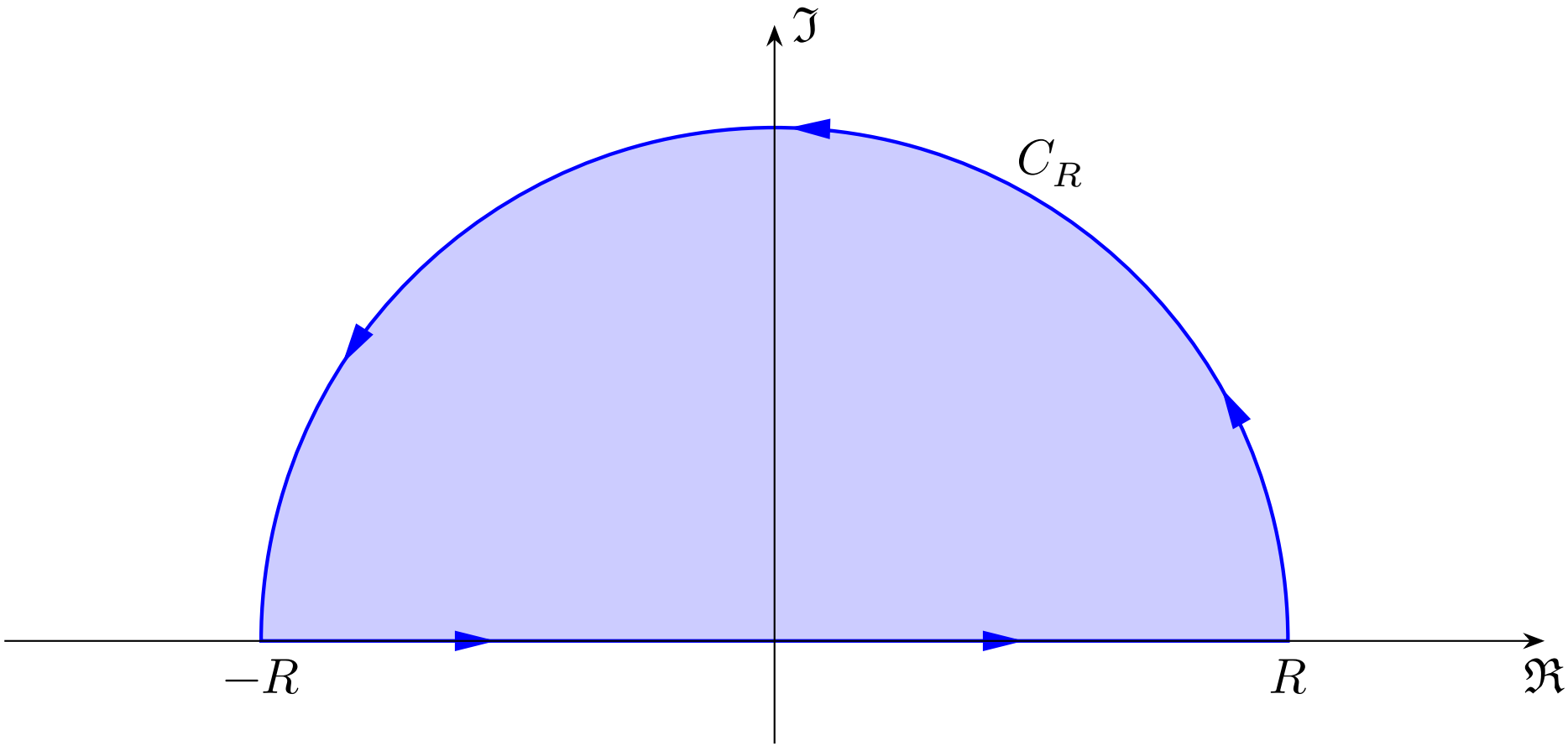
复变函数中常用的围道积分曲线

TikZ 使用技巧

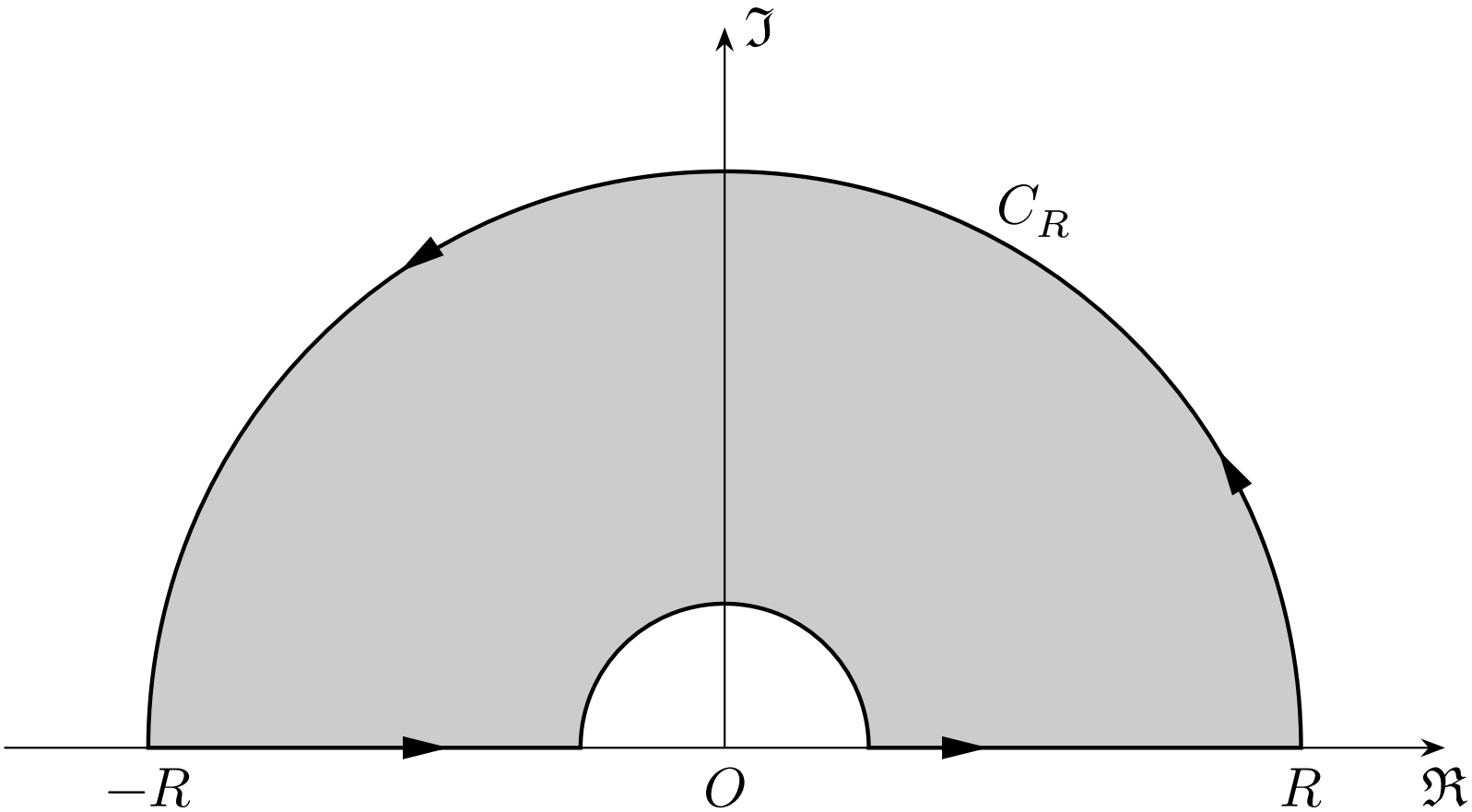
茶凉凉凉凉、
https://chaliang412.github.io/

2026 年 10 月 11 日

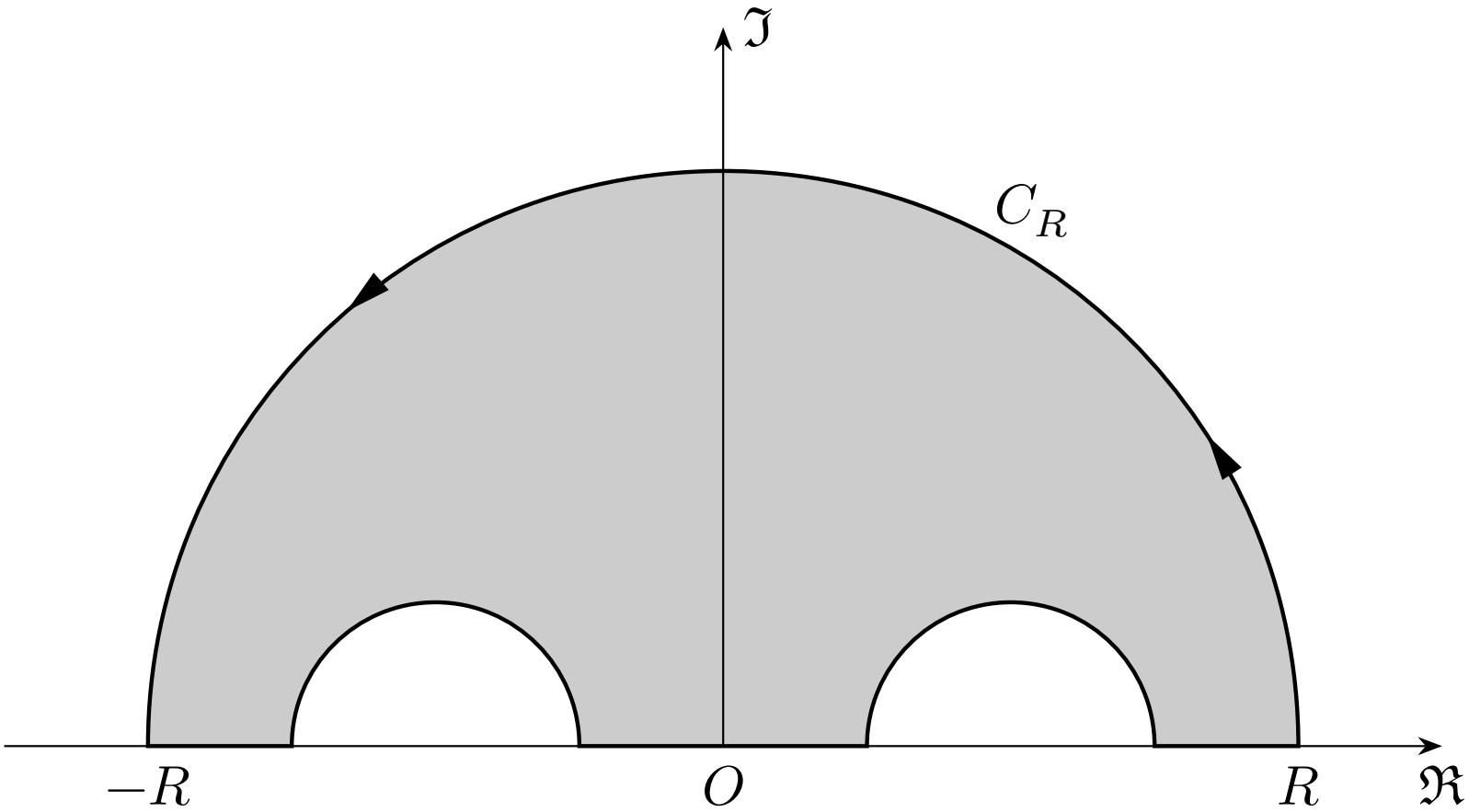
1. 半圆形围道



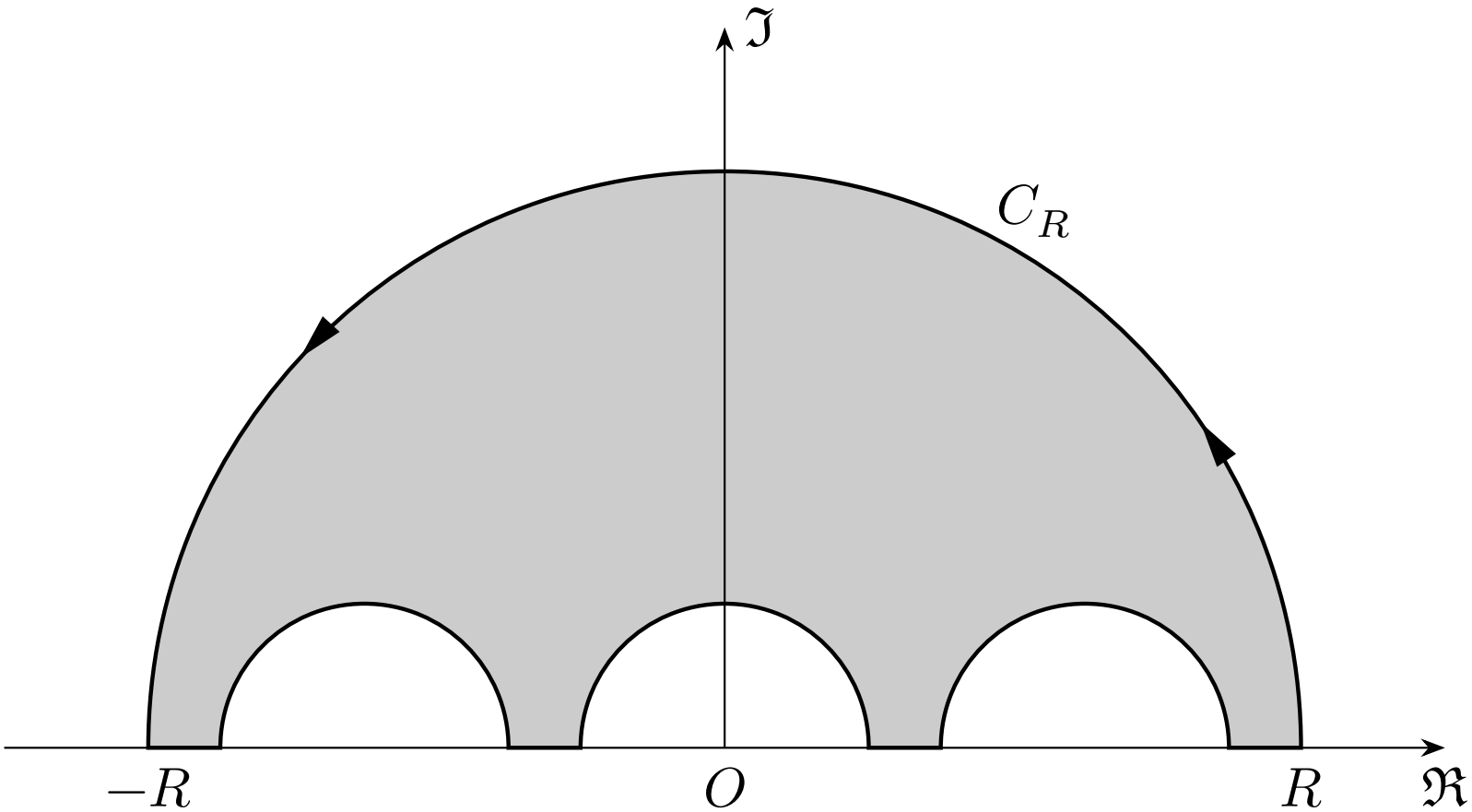
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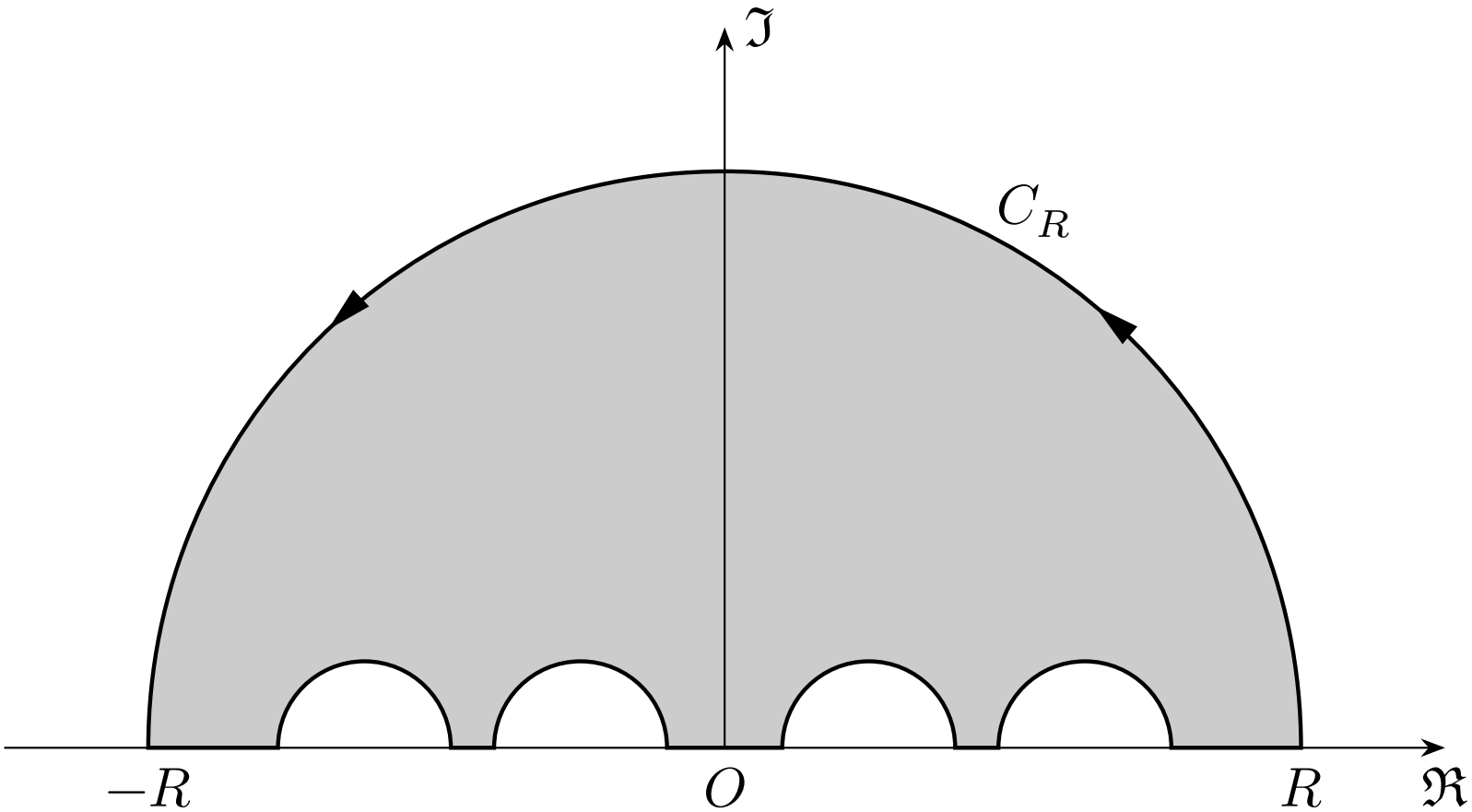
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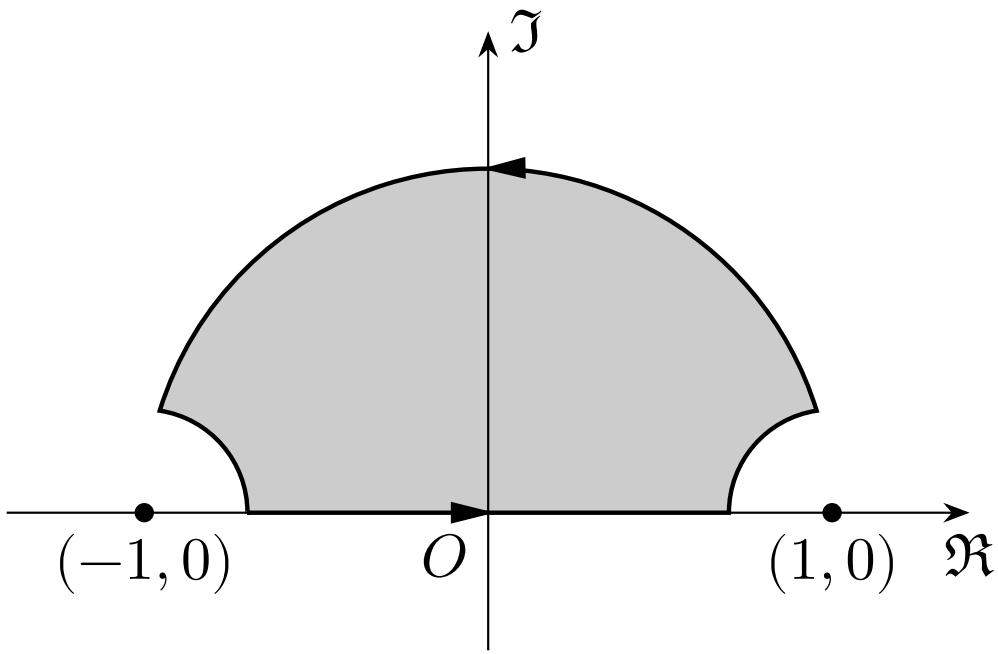
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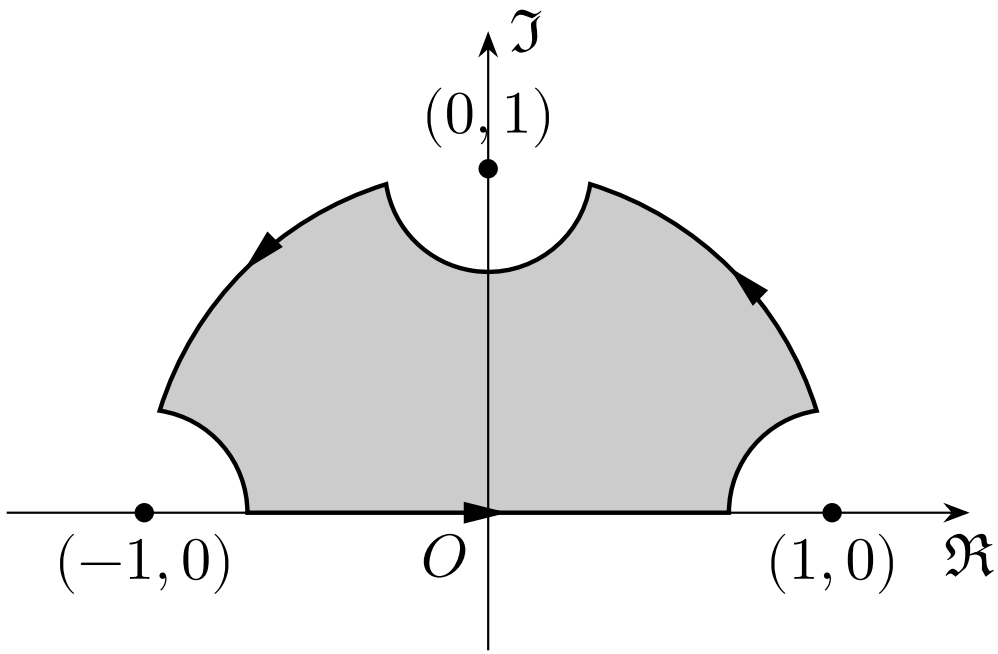
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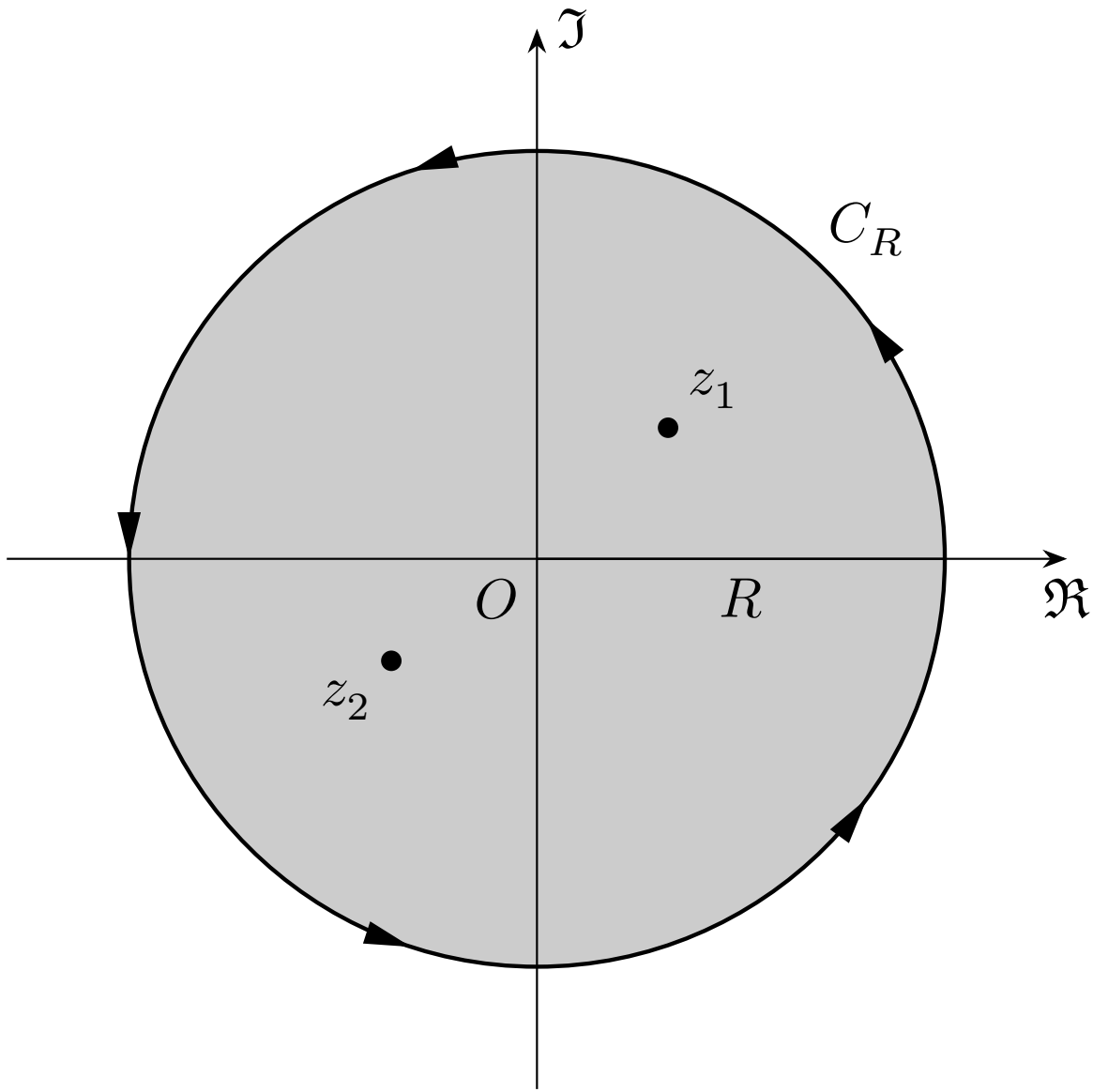
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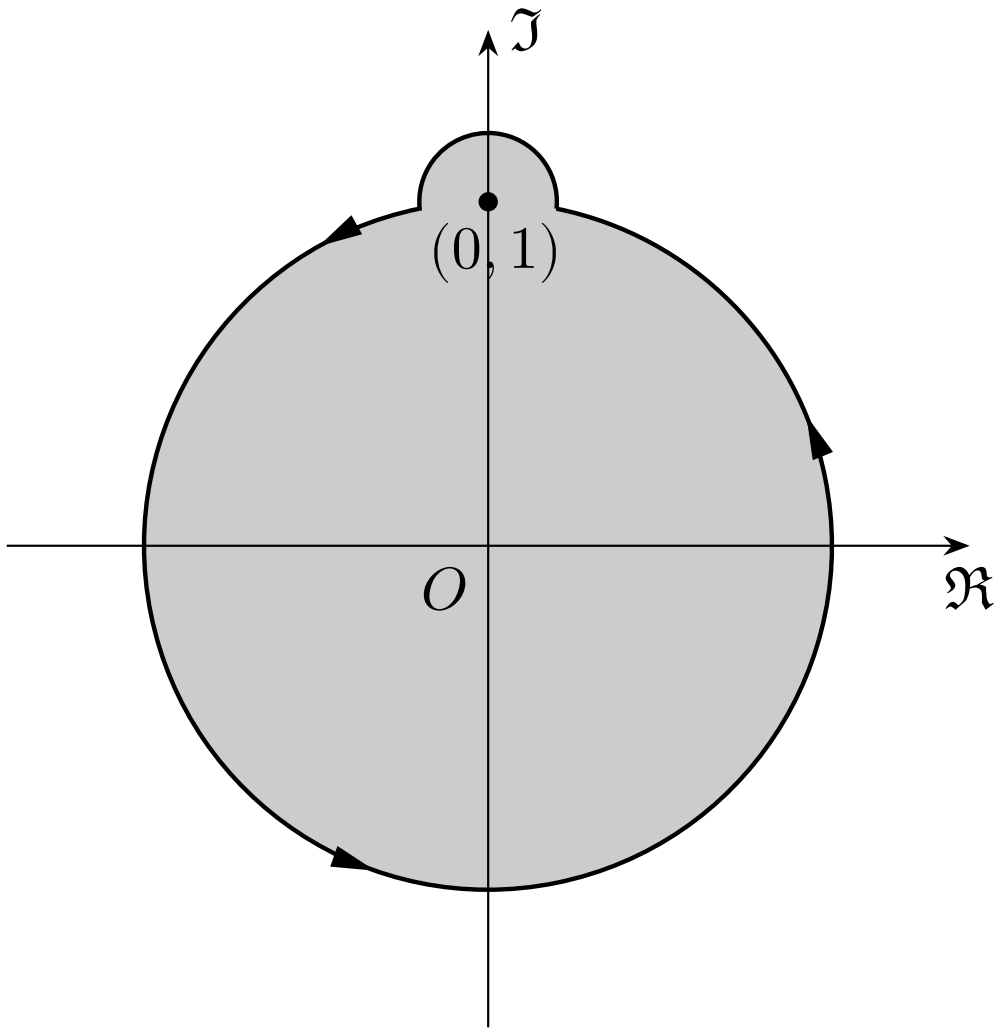
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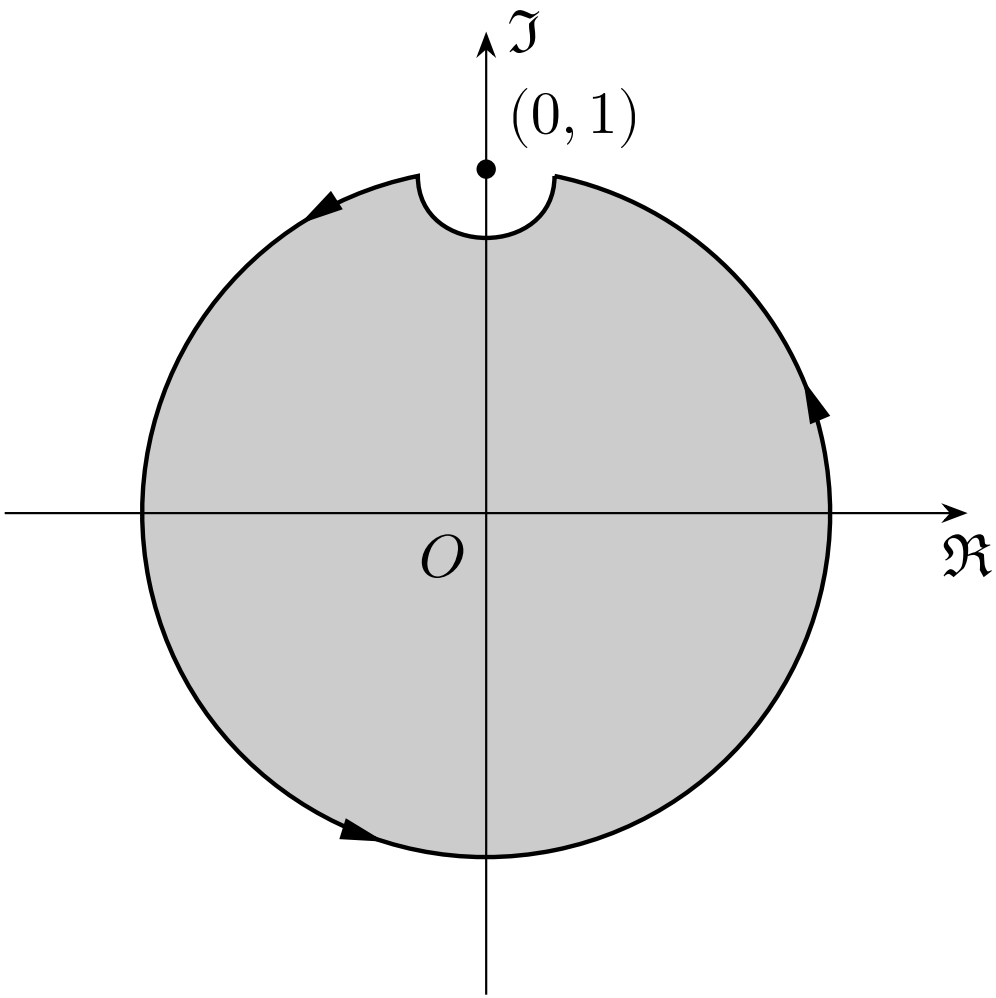
8. 圆形围道



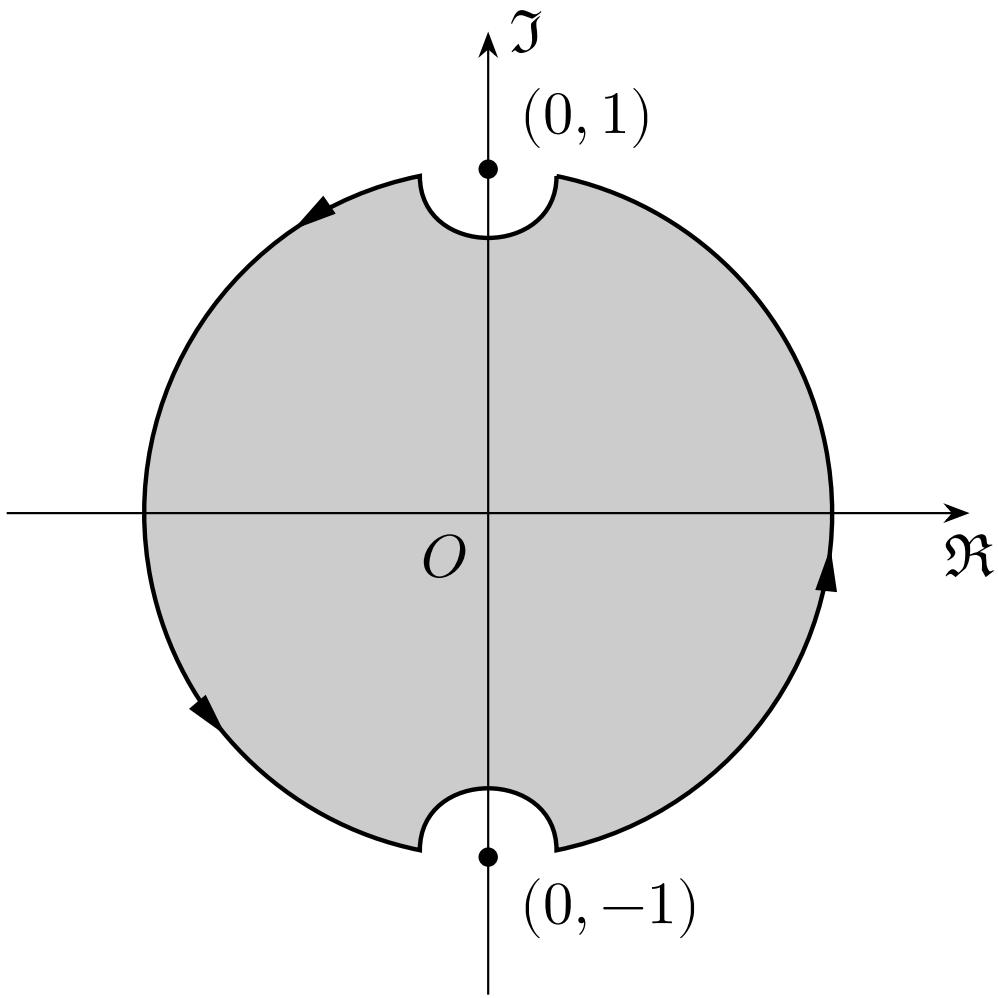
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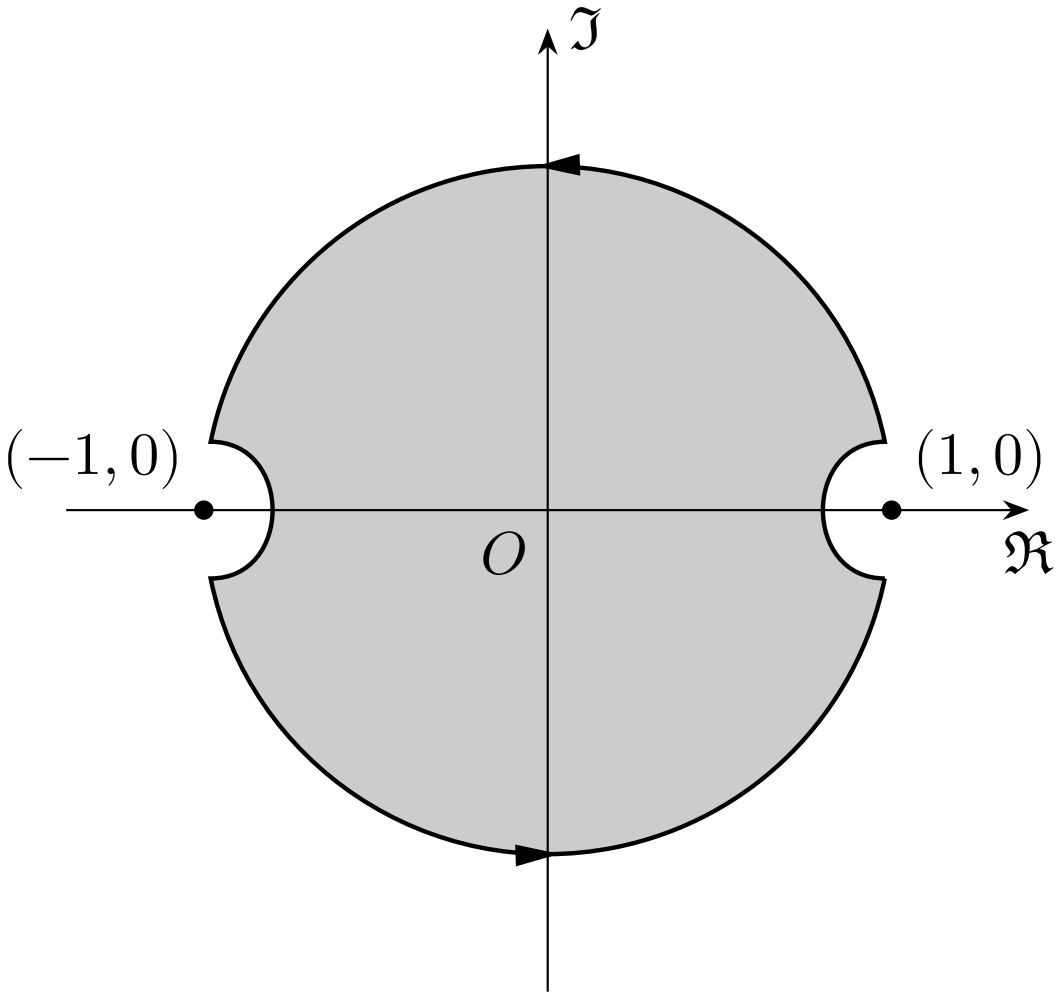
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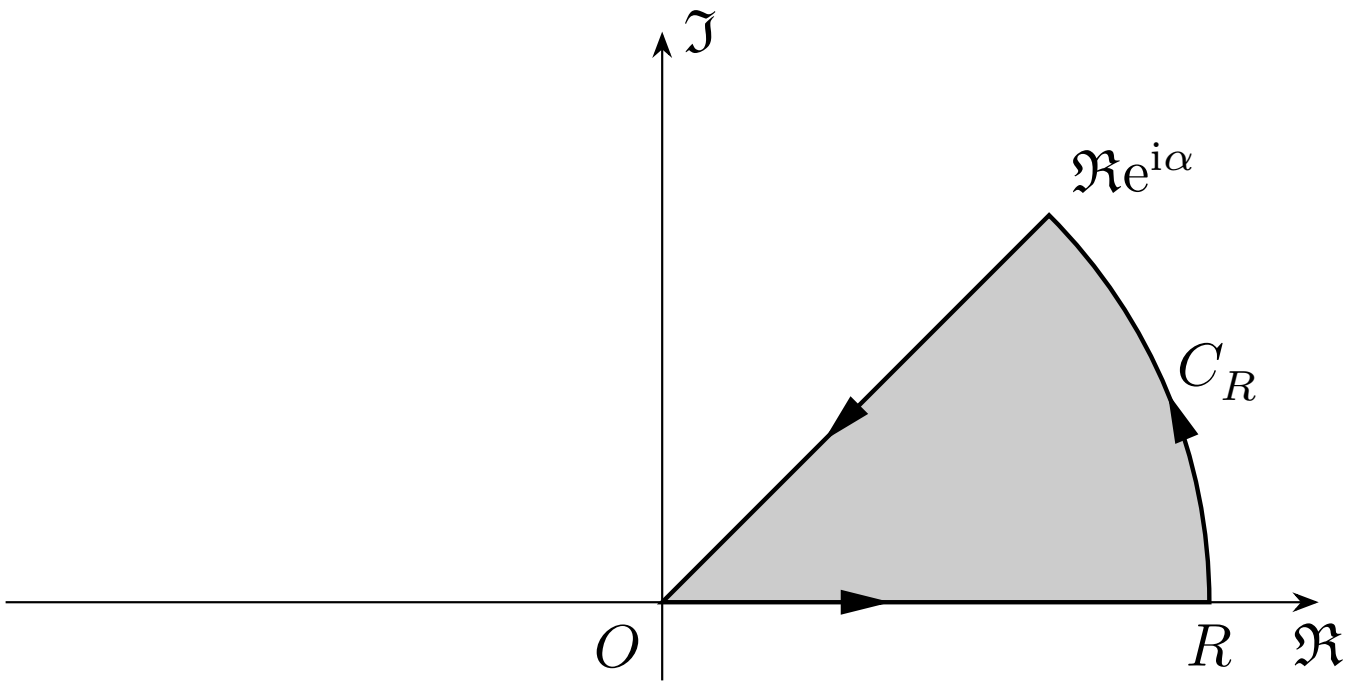
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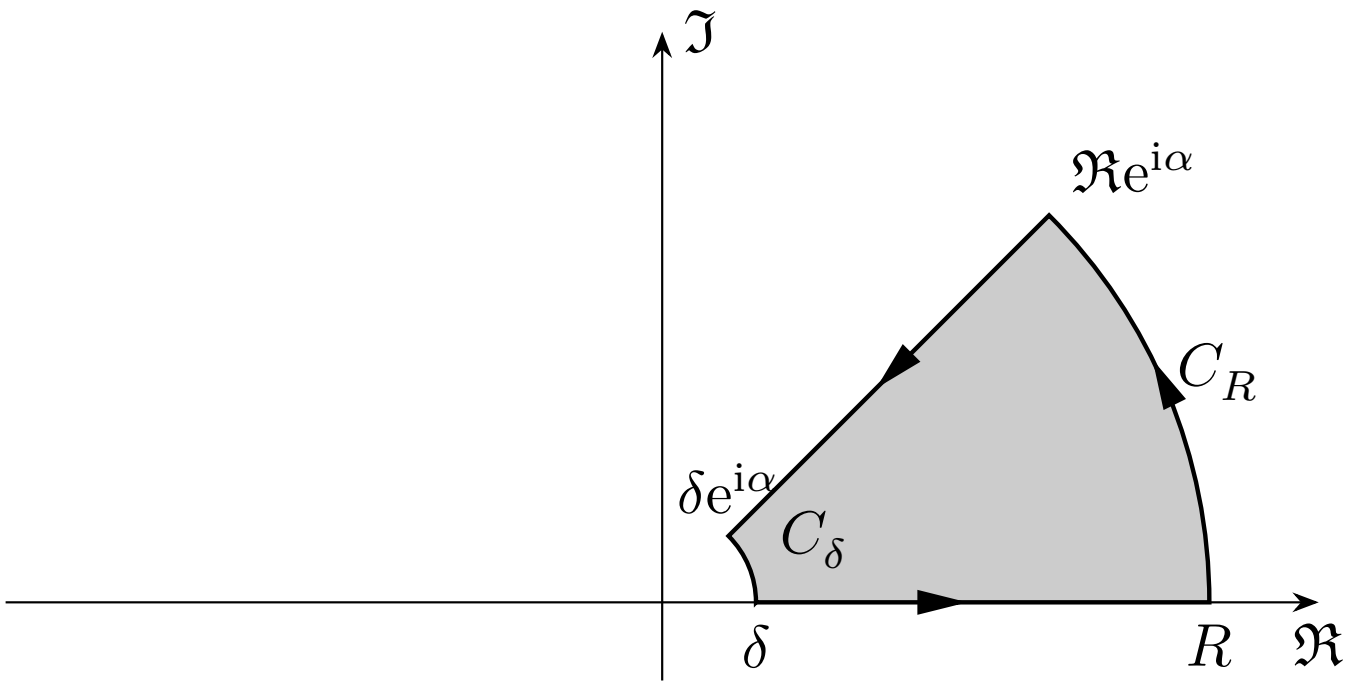
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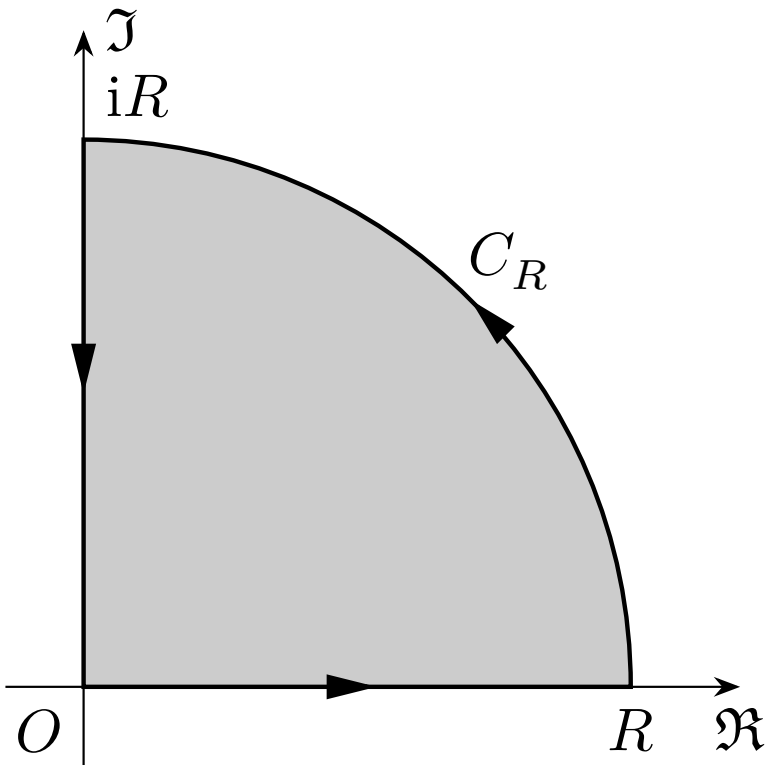
13. 扇形围道



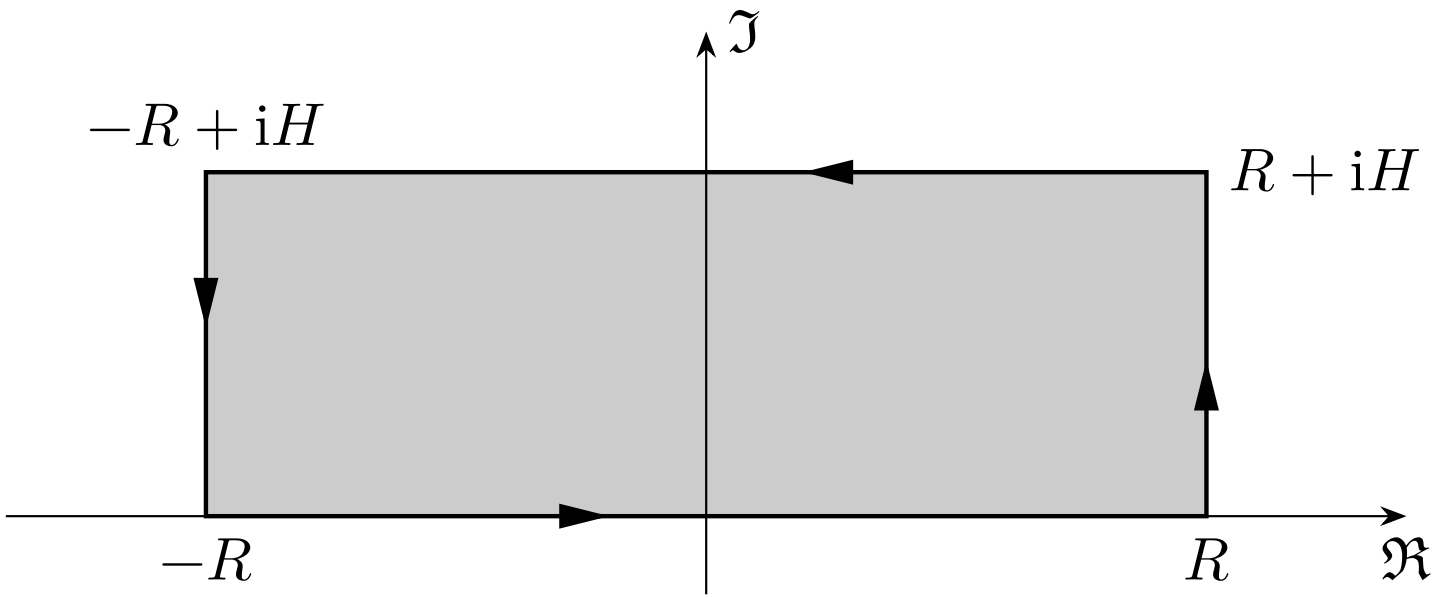
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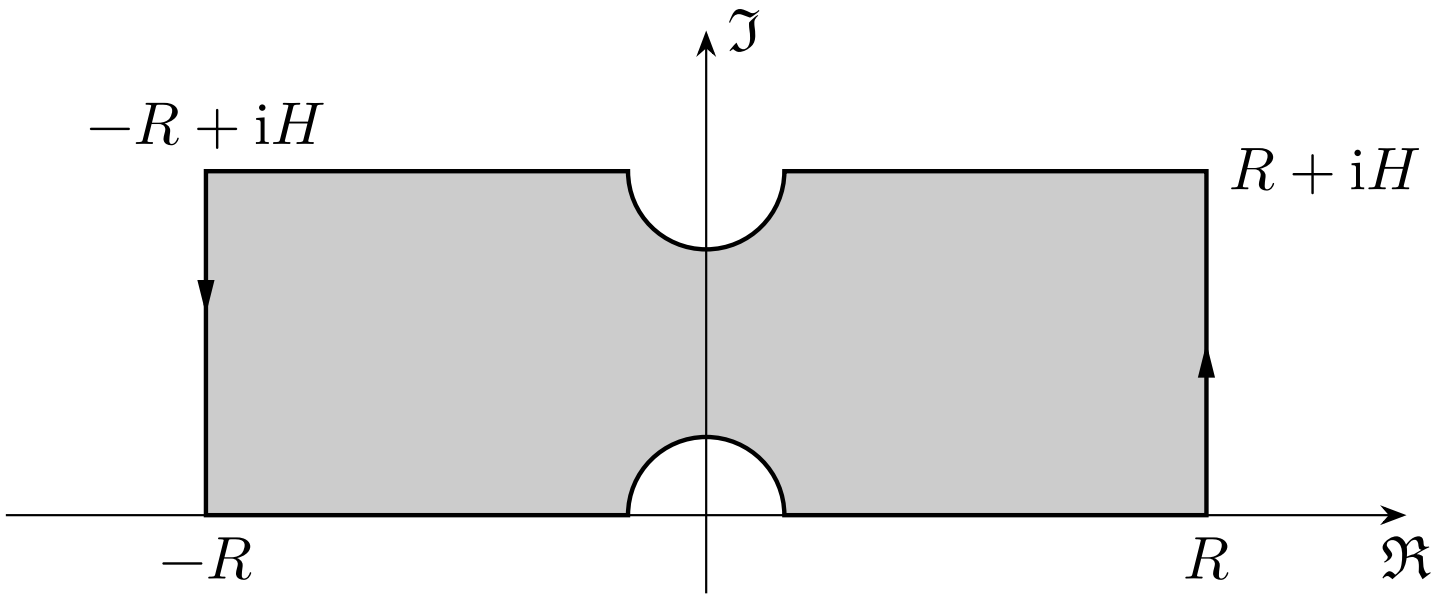
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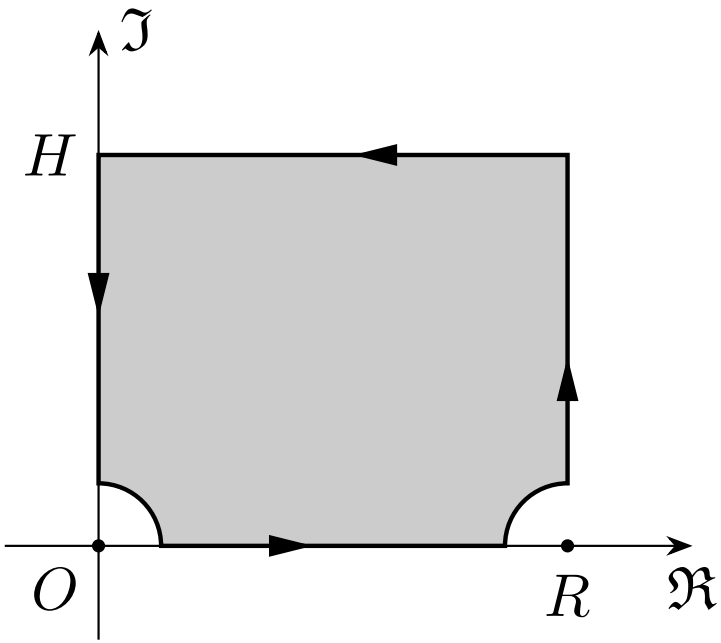
16. 矩形围道



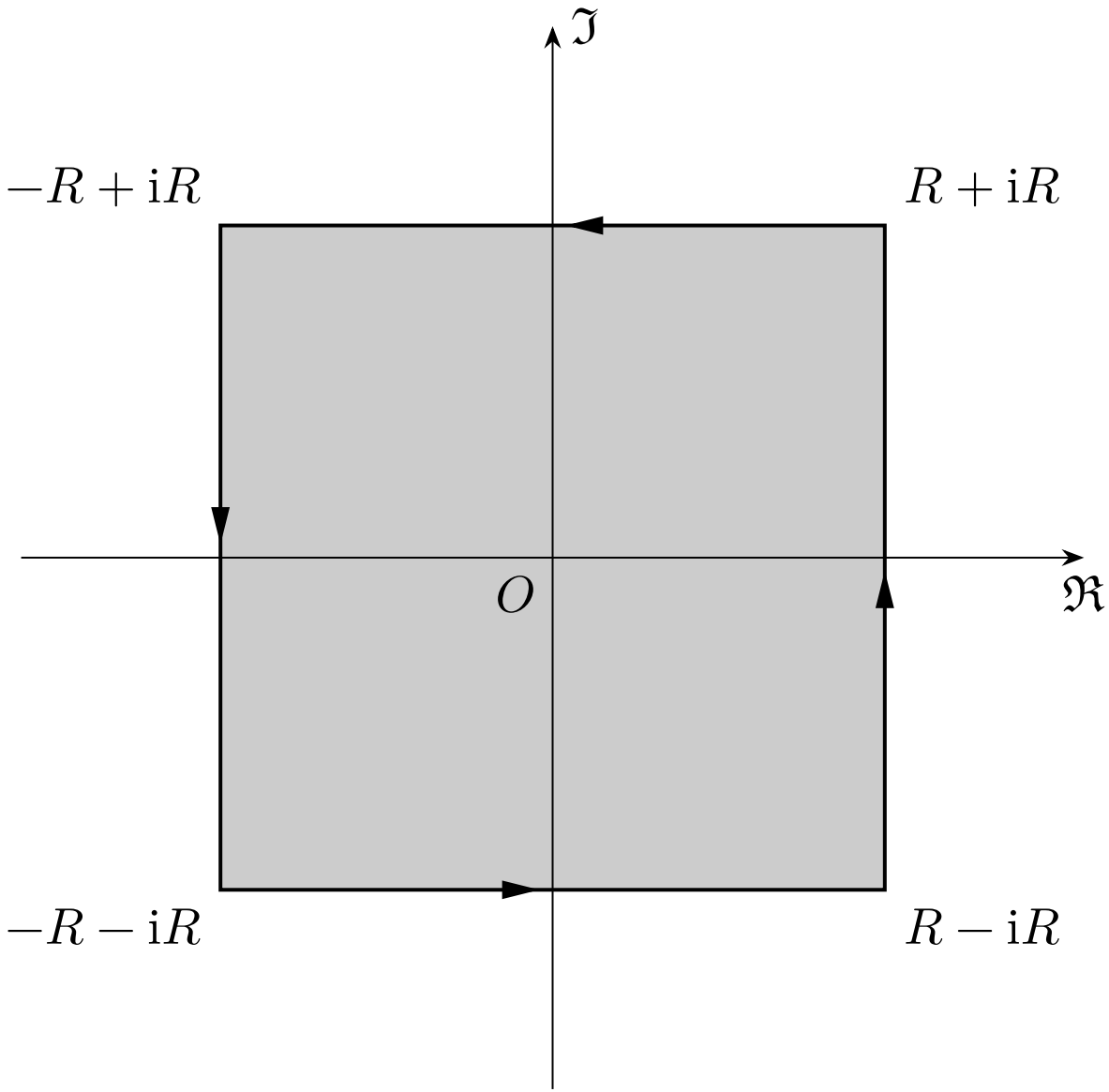
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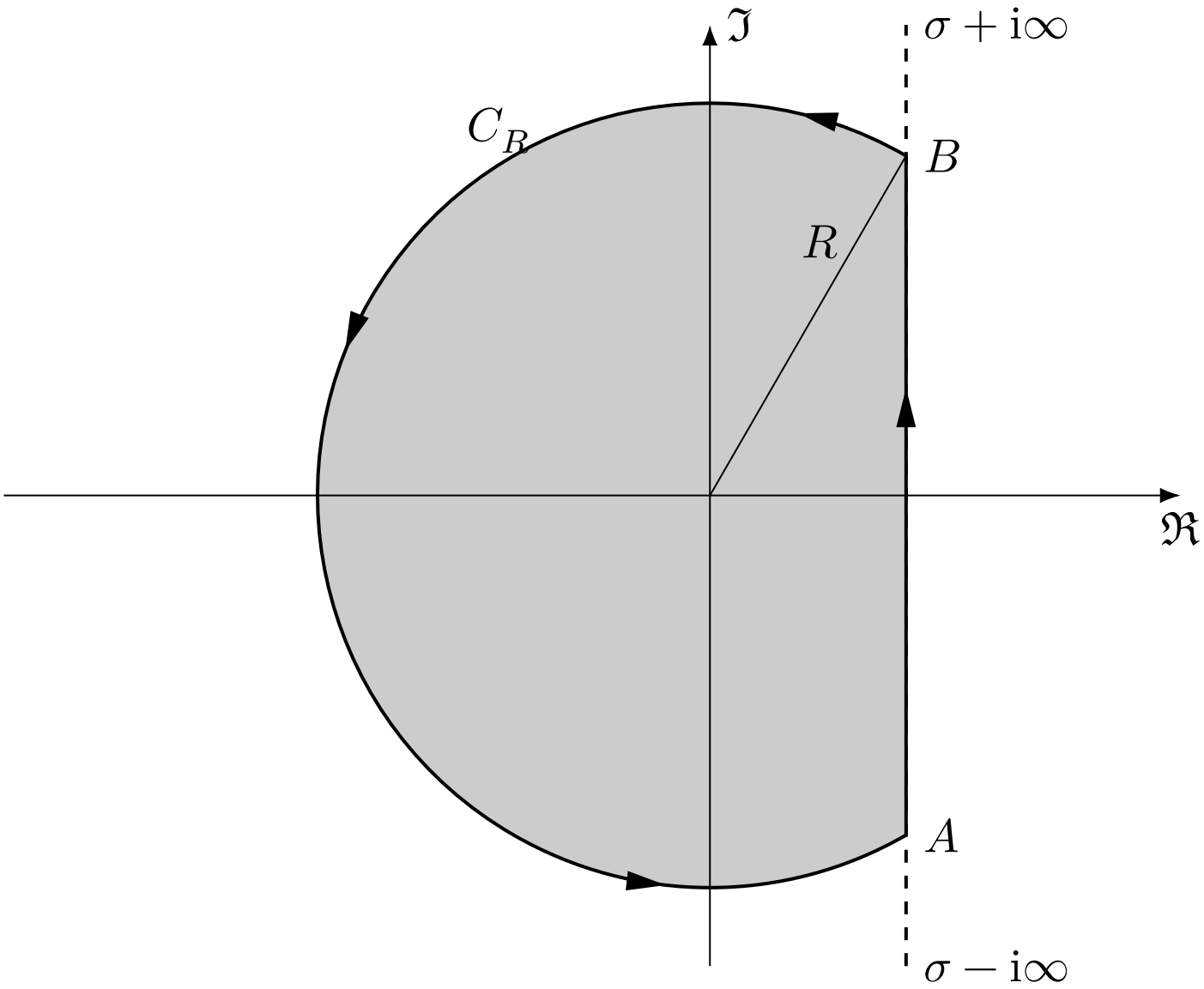
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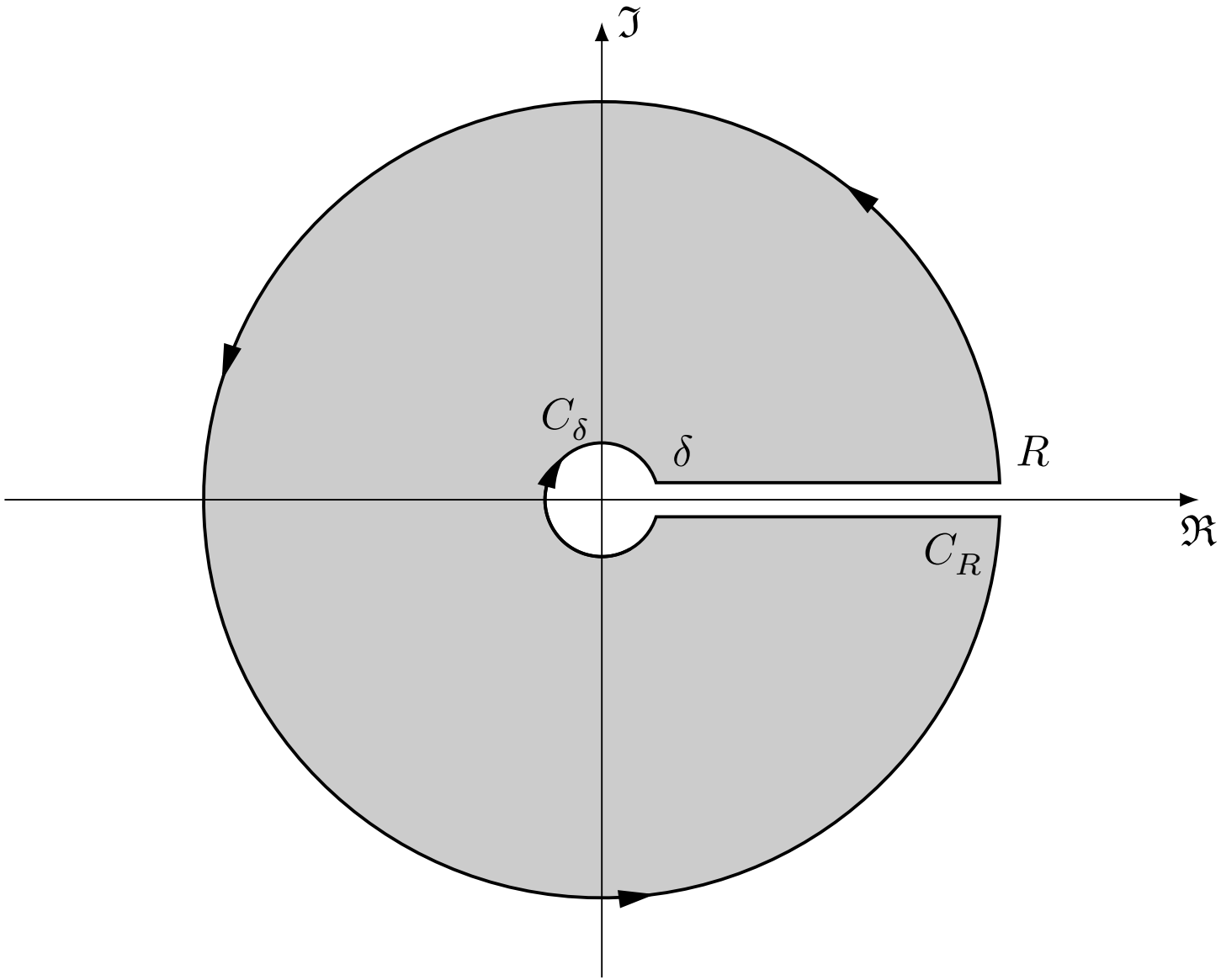
19. 正方形围道



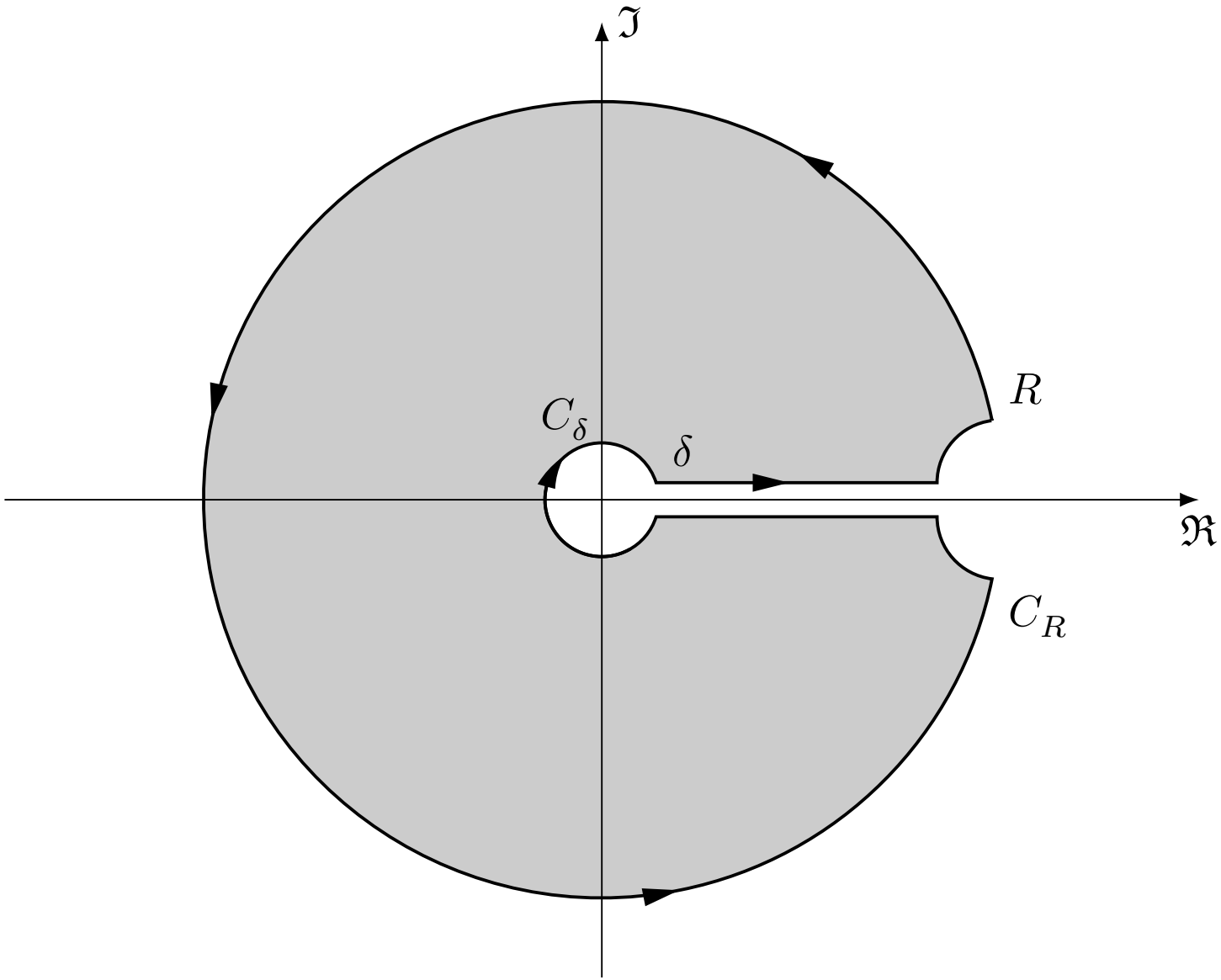
20. Bromwich 围道



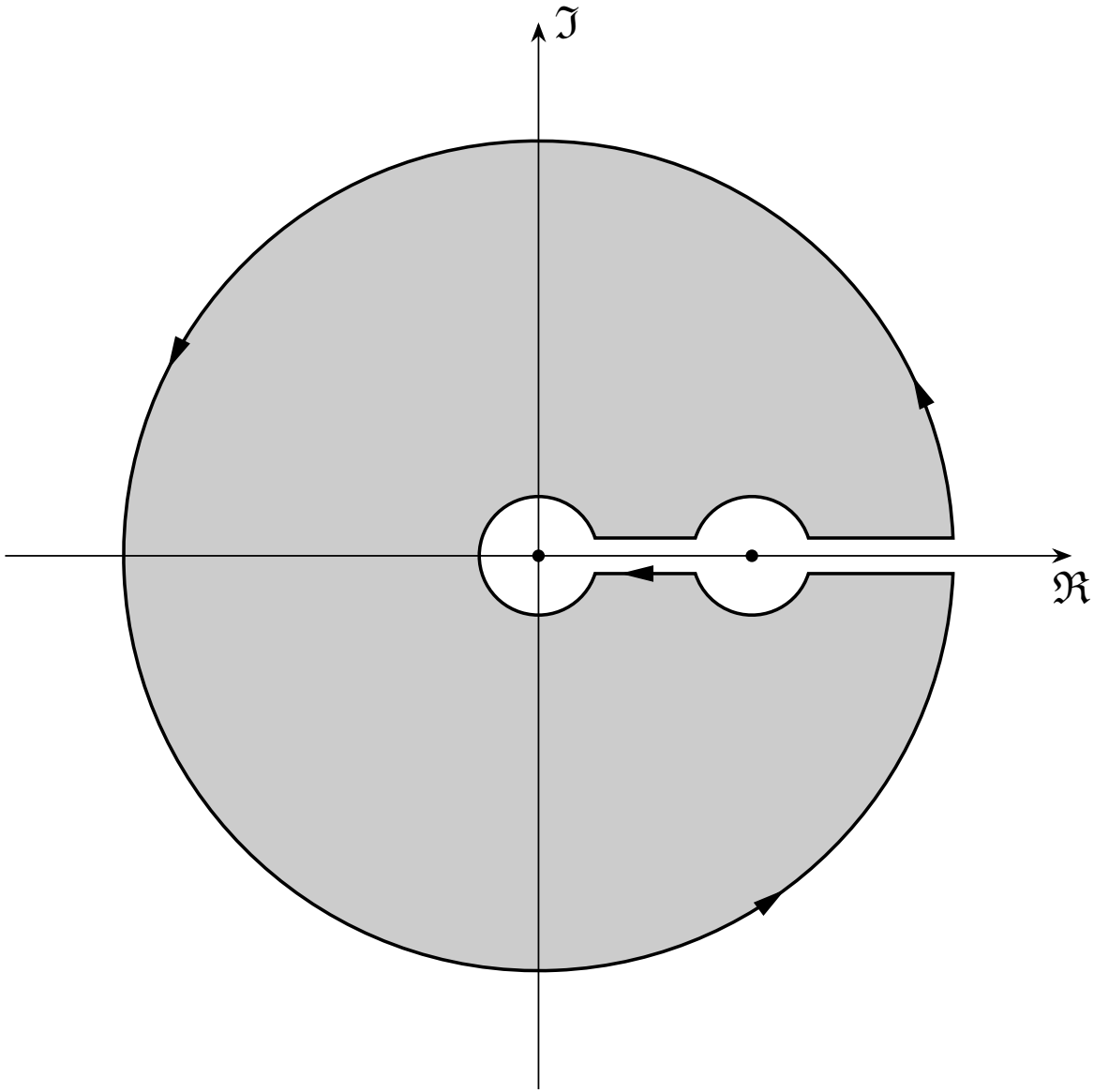
21. 锁孔围道



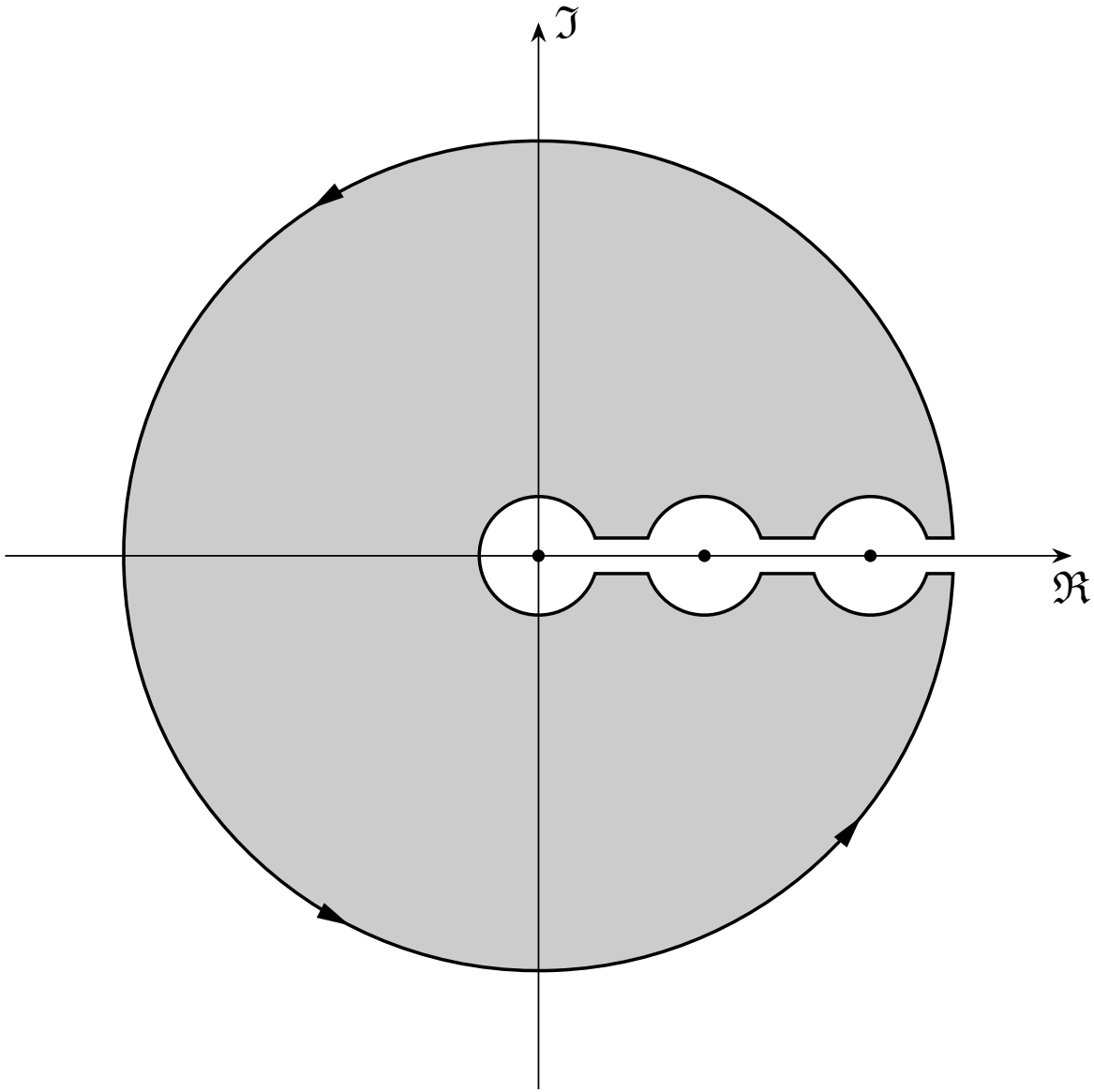
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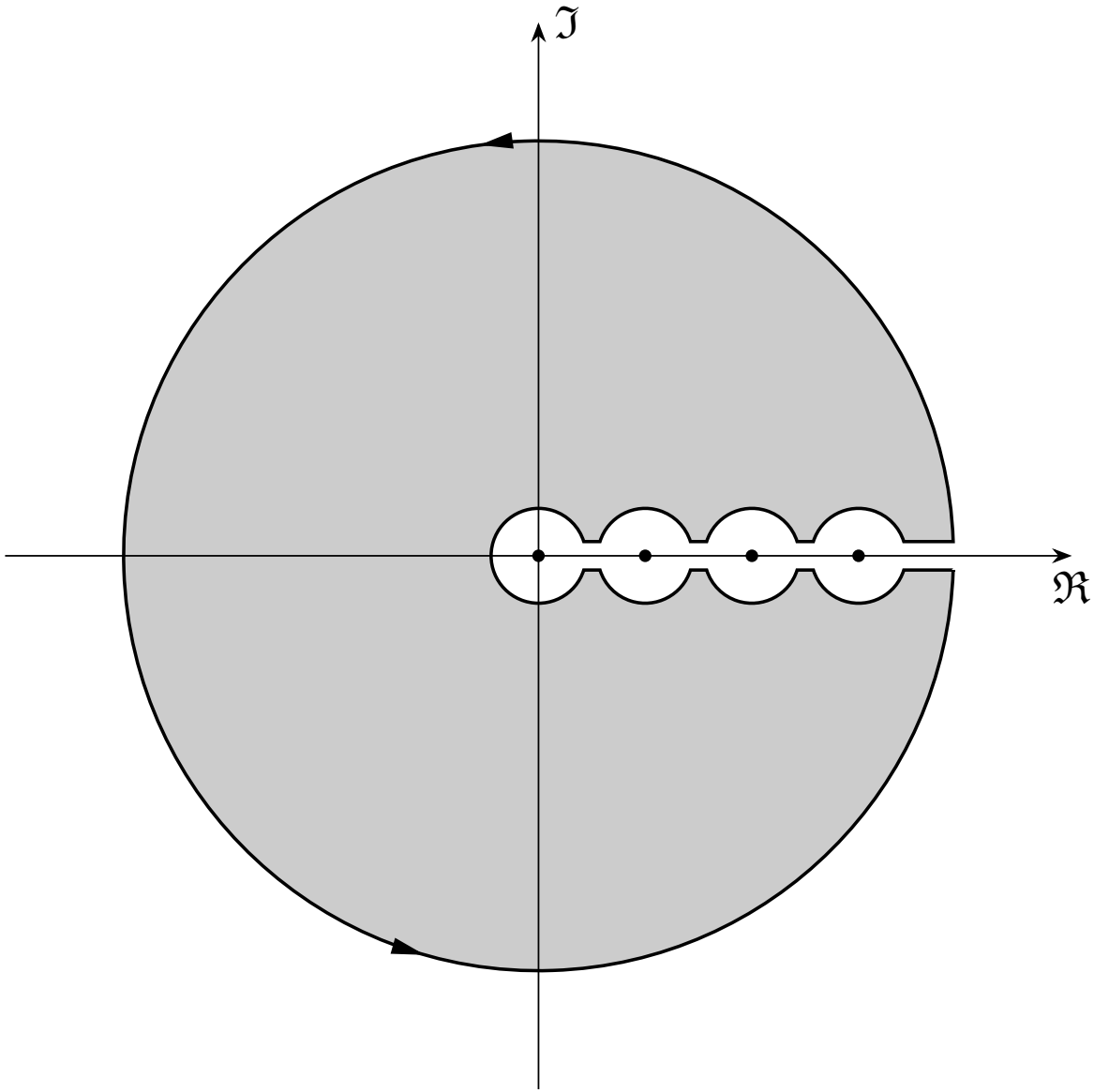
23. 单连通双锁孔围道



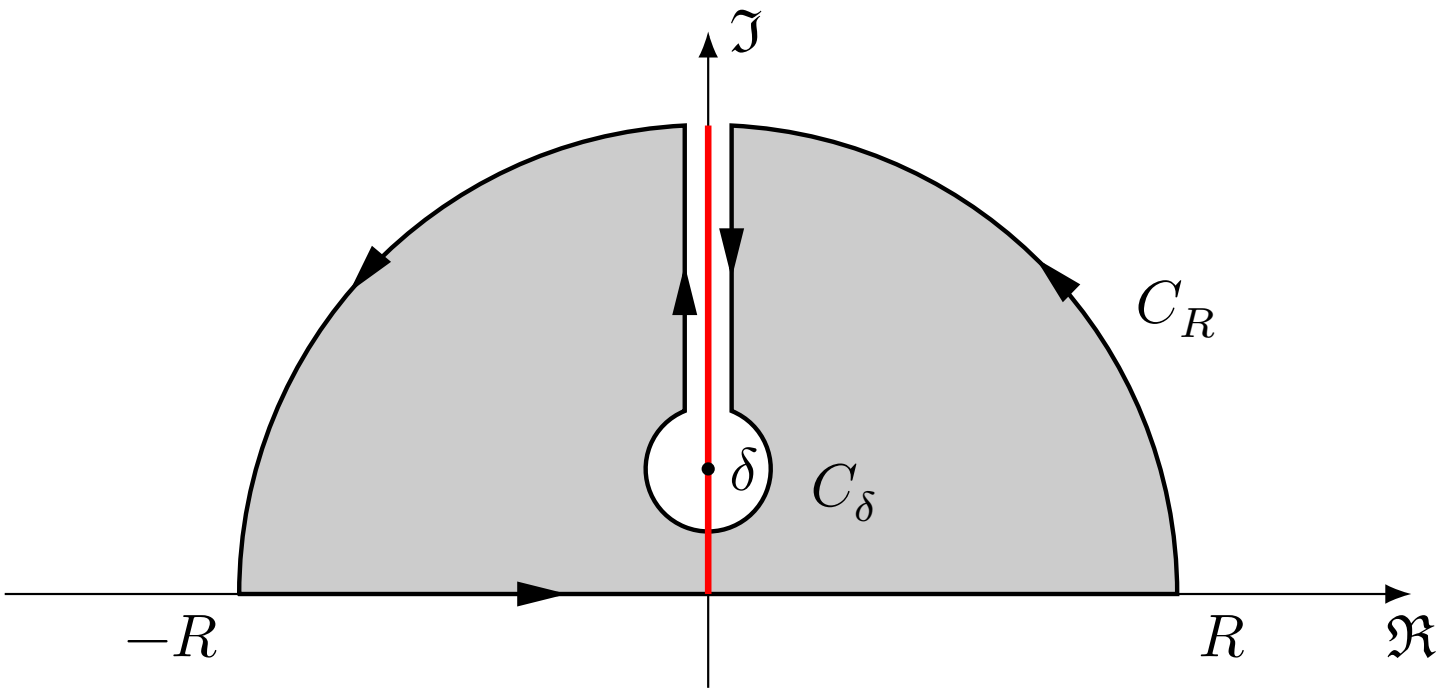
24. 单连通三锁孔围道



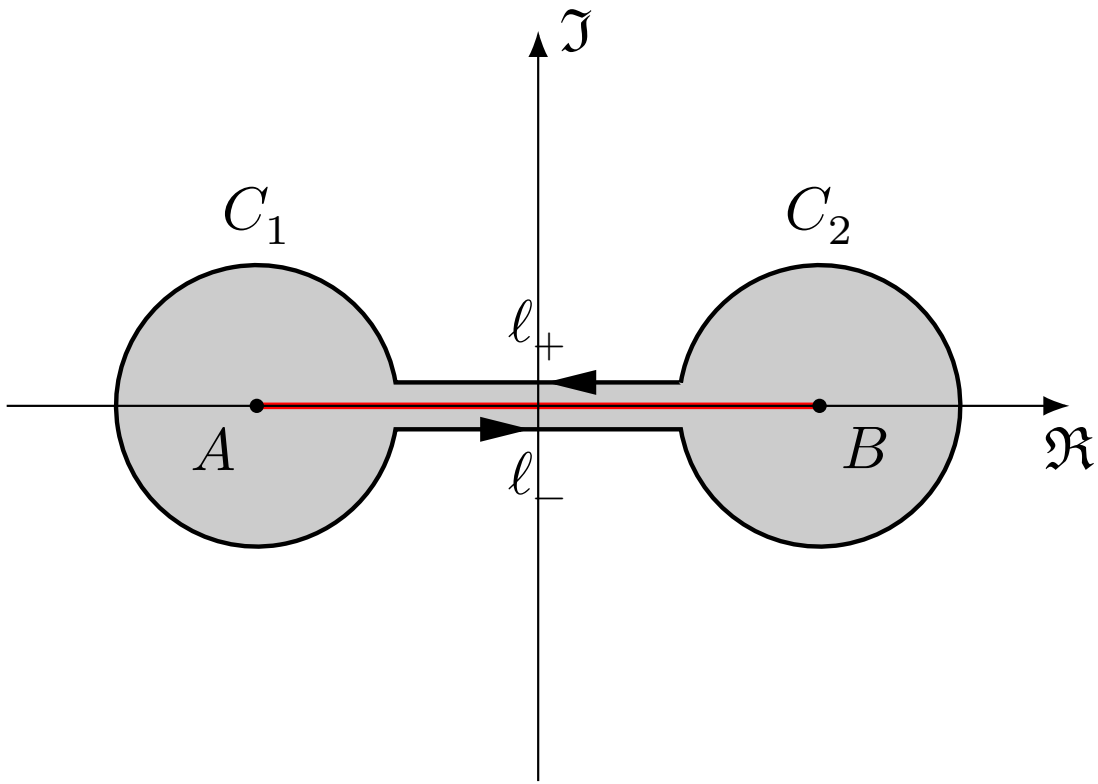
25. 单连通四锁孔围道



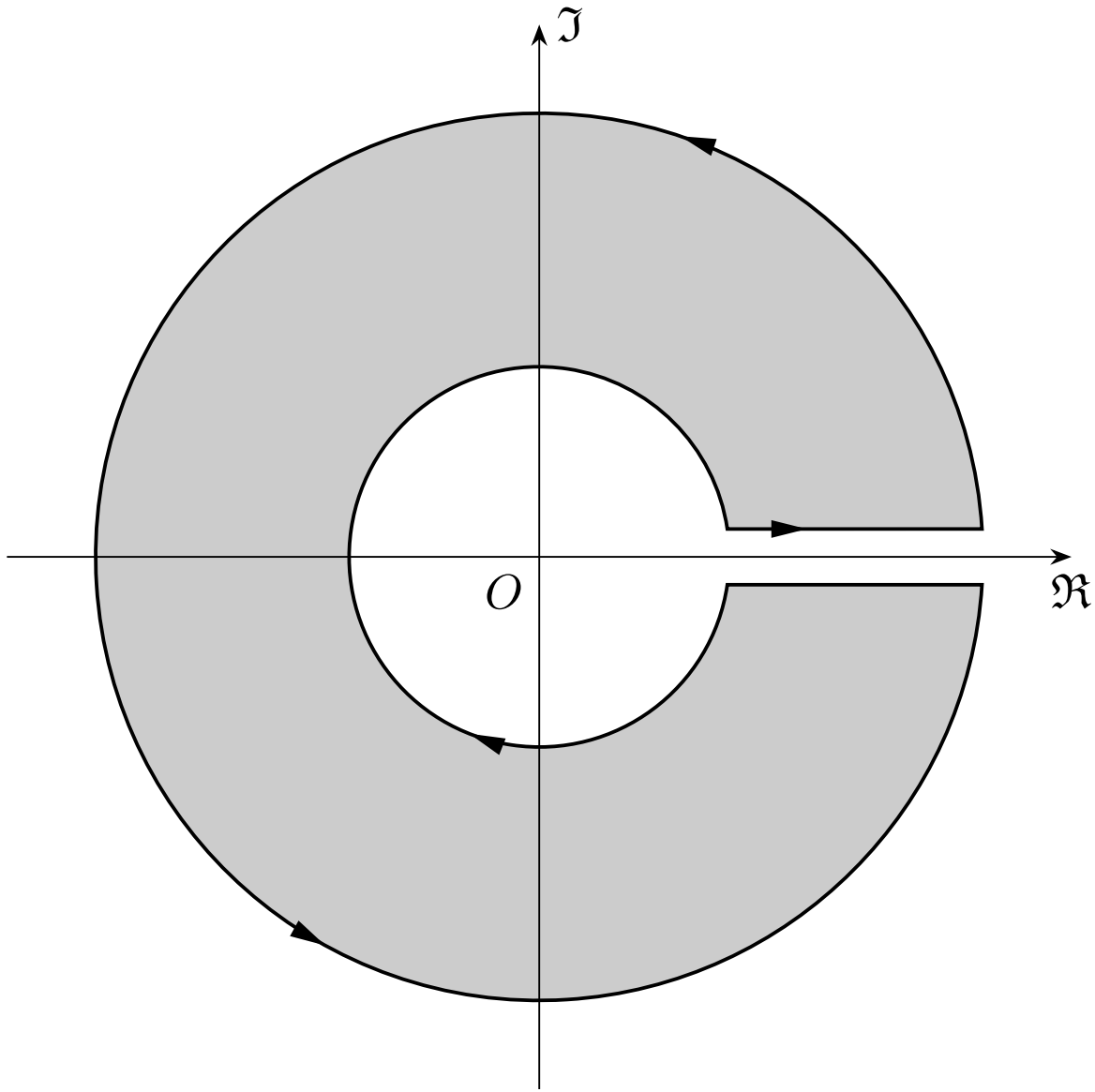
26. 上半平面围道



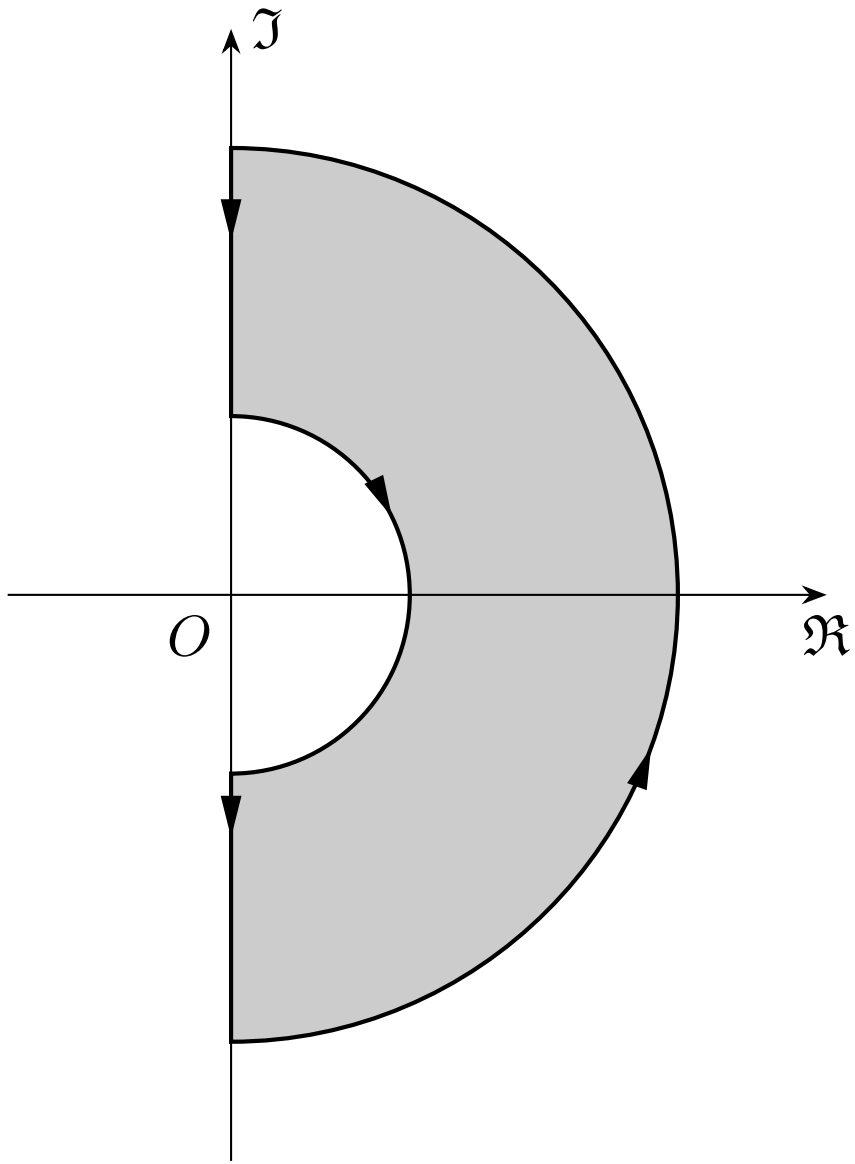
27. “哑铃形” 围道



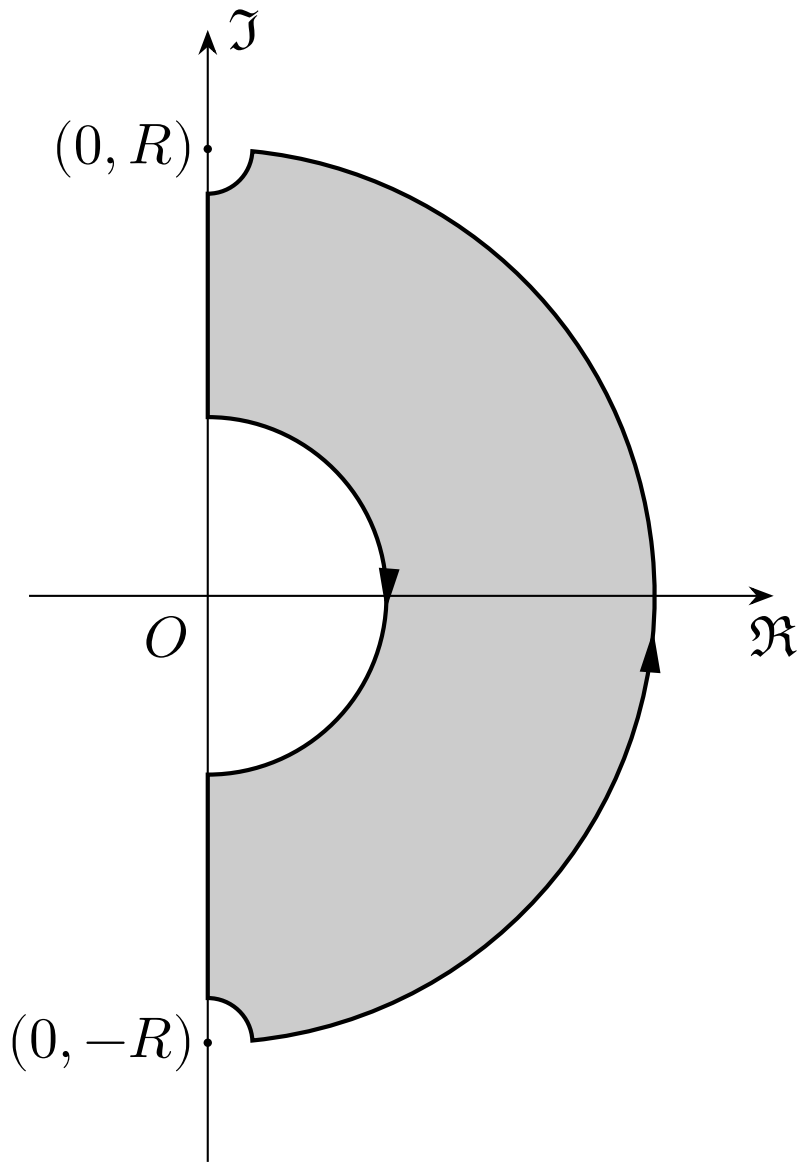
28. C 形开口圆环围道



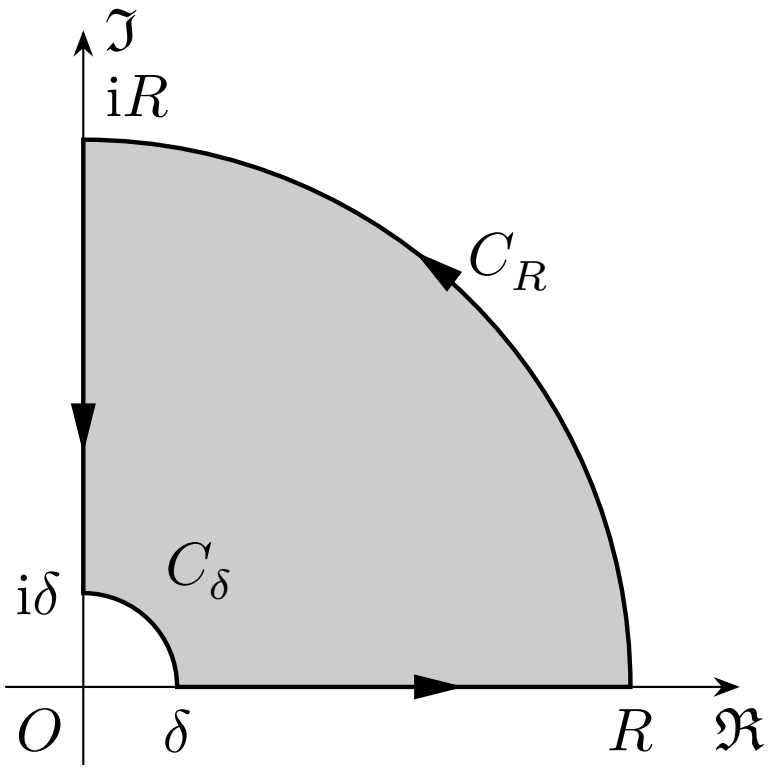
29. 右半平面圆环



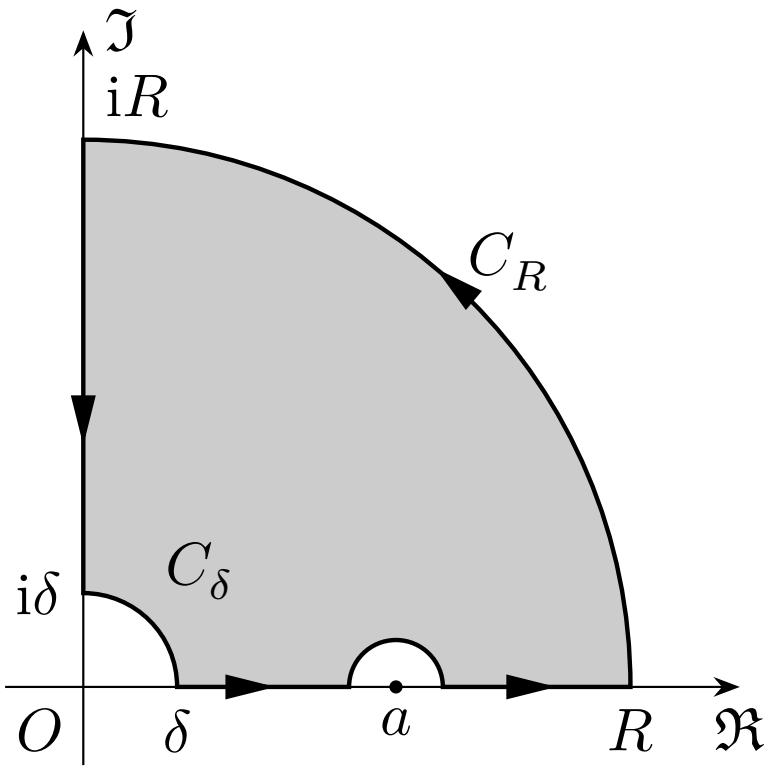
30.



31.



32.



主要参考了：https://zhuanlan.zhihu.com/p/119176842、https://zhuanlan.zhihu.com/p/616112259，以及《超越普里瓦洛夫——留数卷》.

围道积分变化多样，遗落某些图形是在所难免的. 不过，读者可以根据本文中的方法，自己绘制相关内容. 笔者今后有空的话，也可能更新本文.

某些图没有加标题，主要是我也不知道该去怎样形容它.

本文代码：https://pastecode.dev/s/zv2asq6z

值得注意的是，这可能不是最佳方案. 要在曲线上画出弯曲的箭头并不容易，特别是在曲率较大的地方，为此我删去了很多丑陋的箭头. 一个比较好的案例可以参考：https://pastecode.dev/s/rmn65oyf.

当然，如果仅仅作为参考图，那么大可不必关心这些排版上的细枝末节.