

## Zasada odbicia

8. Let the function  $w(z)$  be analytic in the whole plane, real on the real axis, and purely imaginary on the imaginary axis. Show that  $w(z)$  is an odd function.
9. Let the function  $w(z)$  be analytic, apart from a finite number of poles, in the disk  $|z| \leq 1$ . Further, let  $|w(z)| = 1$  for  $|z| = 1$ . Show that  $w(z)$  is a rational function.

## Twierdzenie Riemanna

9. Show that there is one and only one way of mapping a given Jordan domain conformally onto the unit disk in such a way that three given boundary points on the Jordan curve are mapped into three given points on the unit circle.
18. Map a regular polygon of  $n$  sides conformally onto a disk, and treat the square as a special case.  
*Hint.* Divide the polygon into central triangles and map each triangle onto a circular sector with central angle  $2\pi/n$ .

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## Rozszerzanie funkcji na brzeg

3. Show that if a domain whose boundary is a piecewise analytic Jordan curve is mapped conformally onto the unit disk, the mapping is continuous on the boundary.
4. Wskazać holomorficzny izomorfizm  $f:U \rightarrow V$  zbiorów otwartych, (np.  $U=C-R_+$ , a  $V$  jest jednostkowym dyskiem), który nie rozszerza się do funkcji ciągłej na domknięcie  $U$ .