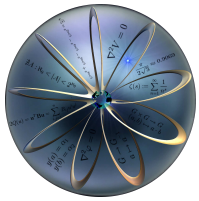

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periodic point

Canonical name	PeriodicPoint
Date of creation	2013-03-22 12:43:38
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Entry type	Definition
Classification	msc 26A18
Defines	hyperbolic periodic point
Defines	attractive periodic point
Defines	repelling periodic point
Defines	least period
Defines	prime period

Let $f : X \to X$ be a function and f^n its n-th iteration. A point x is called a *periodic point* of period n of f if it is a fixed point of f^n. The least n for which x is a fixed point of f^n is called *prime period* or *least period*.

If f is a function $\mathbb{R}$ to $\mathbb{R}$ or $\mathbb{C}$ to $\mathbb{C}$ then a periodic point x of prime period n is called *hyperbolic* if $|(f^n)'(x)| \neq 1$, *attractive* if $|(f^n)'(x)| < 1$ and *repelling* if $|(f^n)'(x)| > 1$.