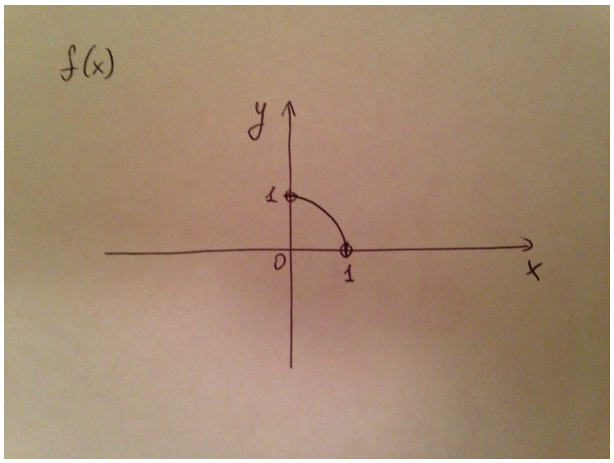
How to draw odd and even extensions of a given function

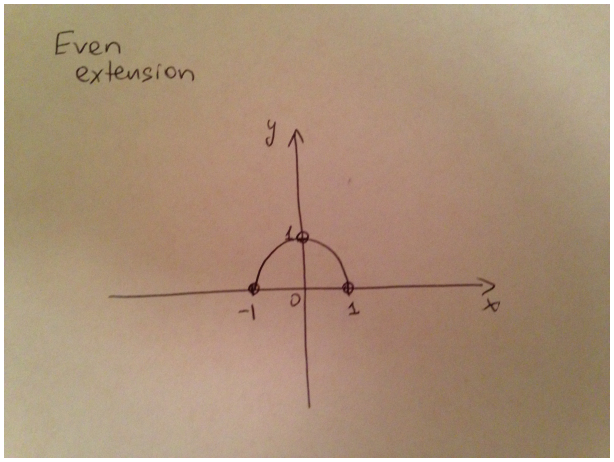
Assume you are given a function $f(x)$ on an interval $0 < x < L$.

Example: Let $f(x) = 1 - x^2, \qquad 0 < x < 1.$

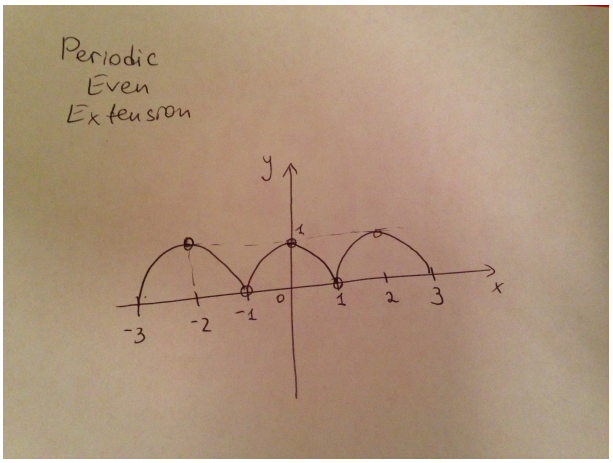
1. Draw the given function $f(x)$ on the given interval (Check if the end points included or not!!!)



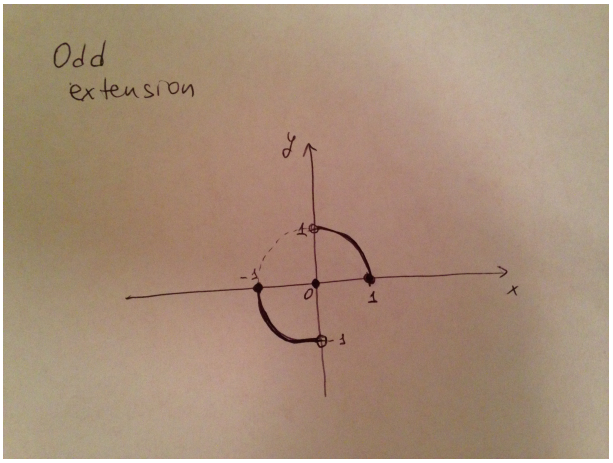
2. If you need to draw **EVEN** extension of $f(x)$: Reflect the picture of $f(x)$ you have on $0 < x < L$ with respect to y-axis on the interval $-L < x < 0$. The union of your $f(x)$ on $0 < x < L$ and its reflection with respect to y-axis on $-L < x < 0$ is an even extension.



3. If you need **PERIODIC EVEN** extension of $f(x)$: Traslate the picture you got in the previous item along x-axis by $2L$ left/right.



4. If you need to draw **ODD** extension of $f(x)$: Reflect the picture of $f(x)$ you have on $0 < x < L$ with respect to y-axis on the interval $-L < x < 0$. Then, reflect the picture you got on $-L < x < 0$ with respect to x-axis. The union of your $f(x)$ on $0 < x < L$ and the result after applying the reflection with respect to x-axis on $-L < x < 0$, adding points $(0, 0)$, $(L, 0)$, (-L, 0) is an odd extension.



5. If you need **PERIODIC ODD** extension of $f(x)$: Traslate the picture you got in the previous item along x-axis by $2L$ left/right.