b) $x(k) = b^{|k|}$, $b > 0$

$$X(z) = \sum_{k=-\infty}^{+\infty} b^{|k|} z^{-k} = \sum_{k=-\infty}^{-1} b^{-k} z^{-k} + \sum_{k=0}^{\infty} b^{k} z^{-k}$$

$k' = -k$

$$= \underbrace{\sum_{k'=1}^{+\infty} b^{k'} z^{k'}} + \underbrace{\sum_{k=0}^{+\infty} b^{k} z^{-k}}$$

• Domaine de convergence

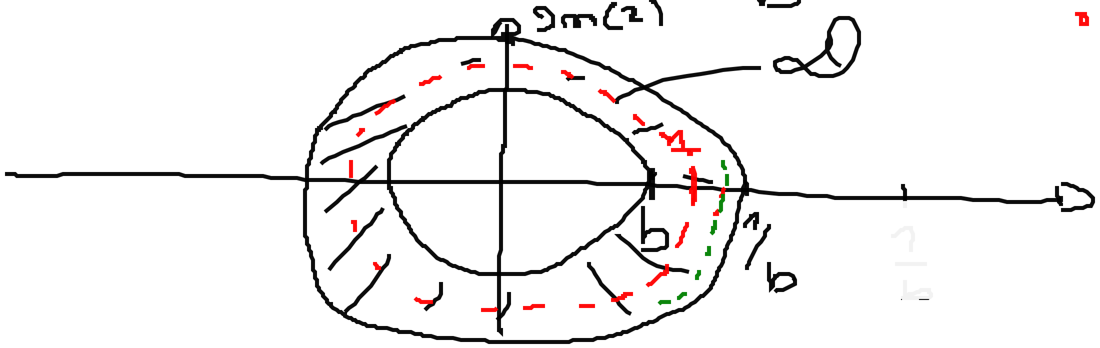
* $\lim_{k' \to \infty} |b^{k'} z^{k'}|^{1/k'} < 1$ (Cauchy)

$|bz| < 1 \Rightarrow |z| < \frac{1}{b}$

* $\lim_{k \to \infty} |b^{k} z^{-k}|^{1/k} < 1$

$|bz^{-1}| < 1 \Rightarrow b < |z|$

$b < |z| < \frac{1}{b}$ $\Rightarrow b < 1$



? TF existe elle
$|z| = |e^{2\pi j f}| = 1$
oui car le cercle unité $\in D$
$b < 1$