

$e^{ix}$	$=$	$i \cos x + i \sin x$	# Euler's formula
	$\Rightarrow$	$e^{i\frac{\pi}{2}} = \cos \frac{\pi}{2} + i \sin \frac{\pi}{2}$	# set $x = \frac{\pi}{2}$
	$\Rightarrow$	$e^{i\frac{\pi}{2}} = 0 + i$	# trig
	$\Rightarrow$	$(e^{i\frac{\pi}{2}})^i = i^i$	# raise both sides to $i$
	$\Rightarrow$	$e^{\frac{i^2 \cdot \pi}{2}} = i^i$	# algebra
	$\Rightarrow$	$e^{-\frac{\pi}{2}} = i^i$	# $i^2 = -1$
	$\Rightarrow$	$e^{-\frac{\pi}{2}}$ is real $\Rightarrow i^i$ is a real number	