

$$X|0\rangle = \text{[Circuit: Identity, then } \pi \text{]} = |1\rangle$$

A quantum circuit diagram showing a single qubit line. It starts with an identity gate (represented by a small red circle) followed by a π gate (represented by a larger red circle with the symbol π inside). The output is equal to the state $|1\rangle$.

$$X|1\rangle = \text{[Circuit: } \pi \text{, then Identity]} = |0\rangle$$

A quantum circuit diagram showing a single qubit line. It starts with a π gate (represented by a red circle with the symbol π inside) followed by an identity gate (represented by a small red circle). The output is equal to the state $|0\rangle$.